ENSV Inspection Transmittal Summary Report

Media:
RCRA

Inspection Type:
CEI

Inspection Date:
11/18/2010

Transmittal Date:

Preliminary SNC Findings:
No

NOV / NOPV / NOPF:
No

Inspector:
DEDRIEL NEWSOME

Facility Name:
Northrop Grumman Guidance and Electronics Co.

Address:
4811 West Kearney Street
Springfield
MO
65803

ID Number:
MOD007152903

Activity Number:

MM Participationg Progams:

Federal Activity:

Federal Facility:
No

Potential EJ:
No

SBREFA Provided:
N/A

Security Handout Provided:
N/A

MM Screening Completed:
Yes

EMS ISO 14001:
No

Compliance Officer:
BETH KOESTER

Selection Criteria 1:
LQG (KS,MO,NE)

Selection Criteria 2:

ACS Code:
RCRA02

Inspection Findings:
This facility has closed and is in the process of being investigated and remediated under the oversight of MDNR Superfund.

Comments:

Target Quality:
Closed facility.

A001

504171

RCRA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

DEC 20 2010

MEMORANDUM

SUBJECT: RCRA Compliance Evaluation Inspection at
Northrop Grumman Guidance and Electronics Company, Inc., Springfield, MO
MOD007152903

FROM: Dedriel Newsome, Environmental Engineer
ENSV/EFCB

THRU: John Houlihan, Chief
ENSV/EFCB

TO: Donald Toensing, Chief
AWMD/ RESP

At the request of Air & Waste Management Division (AWMD), I performed a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) at the Northrop Grumman Guidance and Electronics Company, Inc. in Springfield, MO (Northrop-Springfield). Northrop-Springfield is located at 4811 W. Kearney St, Springfield, MO 65803. The mailing address is P.O. Box 1693, Mail Stop 1401, Baltimore, MD 21203. I conducted the inspection on 11/18/2010 under the authority of RCRA Section 3007(a), as amended. During the inspection, I collected the information and data necessary to determine compliance with the applicable regulatory and statutory requirements. This memo and attachments present the results of the inspection. I conducted the inspection as a Level B Multi-Media Inspection and the Multi-Media Screening Checklist is included as attachment 1. Based on the information obtained during the course of the inspection, I inspected the facility as a conditionally exempt small quantity generator (CESQG) of hazardous waste. According to the EPA RCRAInfo database, this facility was last inspected by the EPA on 12/6/2005. Five violations were observed for management of satellite accumulation containers, job descriptions and incomplete manifests during the 2005 CEI.

Inspection Procedures

On the afternoon of 11/15/2010, I conducted a drive-by evaluation of Northrop-Springfield. There were no buildings visible on-site. Therefore, on 11/16/2010, I contacted Mr. Saylor, the facility contact listed in the EPA RCRAInfo database. I informed him that I wanted to conduct a CEI at the Northrop-Springfield facility. Mr. Saylor stated that he was located in

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Baltimore, MD and that they had no company personnel located in Springfield, MO. Mr. Saylor and I made arrangements for me to meet with their contractor, Stantec Consulting (Stantec), Springfield, IL, at the trailer office located on-site on 11/18/2010 at 9:30A.M.

On 11/18/2010, I arrived at the site approximately 9:30A.M. and met two Stantec employees. They were Mark Densmore, Sr. Geologist, and Greg Michael, Sr. Engineer. They acted as the Northrop-Springfield facility representatives while I was on-site. However, they did not sign any of the inspection forms. Therefore, I emailed them to Mr. Saylor on 11/22/2010 for his signature. Mr. Saylor returned them on 11/23/2010 along with additional analytical information (see attachments 2 and 3). I also discussed my inspection findings with Mr. Saylor on the telephone at this time. Mr. Saylor requested that all EPA correspondence be sent to him at the above mailing address.

Facility Description

Northrop-Springfield is no longer operating. In approximately 2007, they sold what they could and demolished the building. Currently, Stantec is conducting on-site investigative and remediation activities. The investigative and remediation activities are being overseen by the Missouri Department of Natural Resources (MDNR), Division of Geology and Land Survey, Superfund Section. The MDNR contact is Evan Kifer located in Jefferson City, MO. Mr. Kifer stated that Northrop-Springfield is currently operating under a 1993 consent decree with MDNR that is in the process of being updated and expected to be finalized by December 2010. The contaminants are primarily tetrachloroethylene (TCE), 1,1,1-trichloroethane (TCA) and other "daughter" constituents. The areas of concern are shown on the layout included as attachment 4. Remediation activities currently include soil and groundwater treatment.

Soil remediation consists of Electrical Resistance Heating (ERH). A full-scale ERH system pilot was conducted on the New Acid Pit (NAP) area and was completed in approximately 2009. Based on the pilot results, an ERH system is currently being installed on the Original Acid Pit (OAP) Treatment Area (see attachment 3 for layout). The ERH system is expected to be operational by approximately January 2011 and the treatment is expected to take about six months. In general, the ERH system heats the soil to remove the contaminants. This generates steam and vapors which are captured. The steam is condensed and the water is discharged to an on-site wastewater treatment system (WWTS). The vapors from the high contaminated areas are treated in a catalytic oxidizer. The vapors from the low contaminated areas are treated in an activated carbon unit. The high and low contaminated areas are pre-determined based on previous analytical sampling results.

Until about June 2010, contaminated groundwater was being extracted and treated in the on-site WWTS. The WWTS consisted of pumping the groundwater into a surge tank, treating it in an air stripper, and discharging it to the city sewer under a pretreatment agreement with the city. Northrop-Springfield has about 14 groundwater recovery wells on-site. Since June 2010, Emulsified Vegetable Oil (EVO) is being used to treat the contaminated groundwater. This treatment process consists of injecting a vegetable oil/bacteria culture mix into the groundwater for degradation of contaminants.

The manifest for the last shipment of hazardous waste manifested off-site when Northrop-Springfield ceased operating in 2007 is included as attachment 5f. Since that time, the wastes generated on-site consisted of the following:

- **Spent Activated Carbon** was generated twice from the ERH pilot study. It was generated on 3/25/2009 and 9/29/2008. It was collected in containers and manifested off-site on 4/9/2009 and 12/10/2008, respectively. It was manifested as a F002/F003/F005 hazardous waste to Clean Harbors (see attachments 5d and 5e for manifests).

- **Soil Cuttings, Sampling Cores and Sediment** are occasionally generated on-site. When they are generated from a contaminated area that is not RCRA hazardous, then they are handled as non-hazardous waste. When they are generated from a contaminated area that is RCRA hazardous, then they are handled as hazardous waste. On 8/17/2009, 7 tons of hazardous soil cuttings were generated on-site. They were manifested off-site on 9/28/2009 to Clean Harbors as a F002/F003/F005 hazardous waste (see attachment 5a for manifest). On 3/25/2009, 4950 pounds of hazardous sampling cores from the NAP pilot ERH system were generated. They were manifested off-site on 4/9/2009 to Clean Harbors as a F002/F003/F005 hazardous waste (see attachment 5c for manifest). On 9/28/2009, 9 tons of non-hazardous soil cuttings were manifested off-site to Clean Harbors (see attachment 5b for manifest).

  A signed LDR notice for the 7 tons of F002 soil cuttings manifested off-site on 9/29/2009 could not be located at the time of the inspection. Mr. Saylor stated that they maintain a copy of the manifests on-site and he also maintains an official file in Baltimore, MD. Mr. Saylor stated that he had a copy of the signed LDR notice that was sent with the manifest shipment. He emailed me the signed LDR notice on 11/19/2010 (see attachment 5a.i).

  At the time of the inspection, I observed two drums labeled as non-hazardous waste on-site. They were a drum of sediment from water that was removed from the non-hazardous A/B Lagoon area and a drum of Geoprobe soil cuttings from the non-hazardous sanitary lagoon. I asked for the analytical results relating to these two waste streams. The data could not be located at the time of the inspection. Mr. Saylor emailed me this data on 11/23/2010 verifying that these wastes were non-hazardous. The data is included as attachment 3, pages 5 through 10.

- **Air Stripper Residue** is generated from the WWTS air stripper unit. It consists of hardened residue (lime stone) that clogs the holes in the stripper trays. The trays were cleaned twice (exactly when was unknown) since 2008. Mr. Michael stated that the hardened residue was physically removed and that no chemicals were used. He stated that about 5 to 10 gallons of residue were generated from each cleaning. The air stripper residue would appear to be a F002/F003/F005 hazardous waste sludge. The residue was returned to the OAP Treatment Area (see attachment 4 for layout). I discussed this disposal with Mr. Kifer and he stated that it was acceptable. He stated that they have let them consolidate some of the wastes on-site in the past. It should be noted that now the

OAP Treatment Area is capped by the ERH system. Therefore, any air stripper residue generated in the future will have to be handled differently.

- **Surge Tank Residue** builds up in the cone shaped bottom surge tank. Mr. Michael believed that the tank was cleaned once since 2008. He stated that he did not know the amount of residue that was generated, but would guess that it was less than 100 gallons. The surge tank residue would appear to be a F002/F003/F005 hazardous waste sludge. Mr. Michael stated that the tank residue was returned to the OAP Treatment Area (see attachment 4 for layout). I discussed this disposal with Mr. Kifer and he stated that it was acceptable the same as the air stripper residue above. Mr. Michael estimated that currently the surge tank contains about two feet of residue. It should be noted that now the OAP Treatment Area is capped by the ERH system. Therefore, any surge tank residue generated in the future will have to be handled differently.

- **Personal Protective Equipment (PPE)** is used on-site. Nitrile gloves are worn during sampling activities. Approximately one to two 2-lb boxes of spent gloves are generated a quarter. Any gloves contaminated with listed waste would also appear to be listed due to the contained-in policy. These gloves were determined to be non-hazardous by Northrop-Springfield based on knowledge and were disposed in the general trash. I discussed this determination with Mr. Kifer and he stated that Northrop-Grumman received approval for a contained-out determination (see attachment 6). According to the contained-out determination approval document, the contained-out determinations for listed hazardous wastes proposed therein was intended to apply to the soil and solid environmental media generated by current and future site activities within the NAP, OAP, and Building Footprint Subfloor area of concerns (see attachment 6, page 5).

- **General Trash** consists of paper, refuse, cardboard, etc. It is collected in an approximately 2-cubic yard dumpster. Allied Waste, Springfield, MO is contacted as needed to collect the waste which is about once a month.

Mr. Michael and Mr. Densmore stated that no waste is generated from the EVO treatment process. Also, there have been no universal waste lamps or batteries generated on-site since the facility closed.

Northrop-Springfield last notified on 5/4/2009 as a large quantity generator (LQG) of F002, F003 and F005 hazardous wastes according to the EPA RCRAInfo database (see attachment 7). I reviewed the RCRAInfo Handler Sheet for any incorrect data and none were noted as shown on attachment 7. Based on the latest manifests provided for review and known hazardous wastes generation dates, it appears that Northrop-Springfield last manifested hazardous waste off-site in September 2009 (see attachments 5a through 5e). They manifested 7 tons of F002 hazardous waste and would have been a LQG at that time. Since September 2009 it appears that they did not generate any hazardous waste other than a small amount of air stripper residue and the estimated 100 gallons of surge tank residue. However, exactly when the air stripper residue and surge tank residue were generated was unknown. Therefore, at the time of the inspection, I inspected Northrop-Grumman as a CESQG. However, they will probably be a SQG or LQG again at various times when the surge tank is cleaned, the ERH system is operating

and/or other remedial activities are conducted on-site. The Entry / Exit checklist completed during the inspection is included as attachment 8.

Attachments

1. Multi-Media Inspection Checklist (2 pages)
2. 11/22/2010 EPA Email Requesting Signature on the Confidentiality Notice and Document of Receipt (4 pages)
3. 11/23/2010 Northrop-Springfield Email Returning the Signed Confidentiality Notice and Document of Receipt Along with Additional Analytical Information (10 pages)
4. Facility Layout with Areas of Concern Noted (1 page)
5. Manifest Documents
    a. 9/28/2009 Manifest and Unsigned LDR Notice –F002 soil cuttings (2 pages)
        i. Email with Signed LDR Notice for 9/28/09 Manifest (2 pages)
    b. 9/28/2009 Manifest and LDR Notice –non-hazardous soil cuttings (1 page)
    c. 4/9/2009 Manifest and LDR Notice – F002/F003/F005 NAP pilot sampling cores (7 pages)
    d. 4/9/2009 Manifest and LDR Notice – F002/F003/F005 spent activated carbon-2nd batch when pilot was done (3 pages)
    e. 12/10/2008 Manifest and LDR Notice – F002/F003/F005 spent activated carbon-1st batch when pilot was operating (3 pages)
    f. 12/13/2007 Manifest and LDR Notice – last manifest shipment of various hazardous wastes when facility closed (10 pages)
6. 12/6/2010 Email of the Contained-Out Determination Approval Document (8 pages)
7. EPA RCRAInfo Handler Information Report (1 page)
8. Entry / Exit Checklist (2 pages)

Forward To: EJ ☐ EPCRA / RMP / TSCA ☐ CWA ☐ Wetlands ☐ UIC ☐ PWS ☐ CAA / CFC ☐ RCRA ☐ UST ☐ SPCC ☐

REGION VII MULTIMEDIA SCREENING CHECKLIST

Facility Name: Northrup Grumman Guidance & Electronics Co., Inc
Facility Ownership: (same)
Street: 4811 W. Kearney St.
City: Springfield State: MO Zip: 65803
Phone: 410-993-7080 Facility Contact: Adam E. Saylor
Number of Employees: closed facility Work Hours/Shifts closed facility Facility Subject to OSHA regulations Yes ☐ No ☒ closed
going thru remediation with MDNR (4 contractors working on-site)
Main facility activity, major process chemical(s) & description: former circuit board manufacturer

Inspector Dedriel Newsome
Primary Media: RCRA
Inspector Phone Ext.: 7049
Date: 11/18/10
SIC/NAICS Code 56291

(**Check all that apply**): painting/coating (water-based ☐, solvent-based ☐), printing ☐, reacting ☐, formulating ☐, distilling ☐, water treatment ☐, refrigeration ☐, manufacturing ☐, parts washers/degreasing (water-based ☐, halogenated-based ☐, non-halogenated-based ☐), combustion (boiler, furnaces, oxidizers) ☐ plating (chrome ☐, other_____).

ENVIRONMENTAL JUSTICE (Note: Forward to EJ if a concern is identified during your inspection)

1. Is the facility located in an apparent low income area (e.g., with many abandoned and dilapidated properties)? No ☒ (stop) Yes ☐
   If yes, is facility less then 1000 feet from nearest routinely occupied property (house, school, etc.)? No ☐ (stop) Yes ☐ ***Forward to EJ***

EMERGENCY PLANNING & COMMUNITY RIGHT TO KNOW ACT (EPCRA) & TOXIC SUBSTANCE CONTROL ACT (TSCA) closed

1. Did facility file a Tier II report with fire department, Local & State Emergency Planning Committee? Yes ☐ No ☐ ***Forward to EPCRA***
2. Did facility manufacture, import, or process (formulate, blend, package) >25,000 lbs of a chemical or >100 lbs of a Persistent Bioaccumulative Toxin (lead, mercury, or polycyclic aromatic compounds) at any time over the last 5 years? No ☐ (stop) Yes ☐ ***Forward to EPCRA***
3. Has the facility: ***If any box in question 3 is marked - Forward to EPCRA***
   a. Stored ≥500 lbs of ammonia ☐, ≥100 lbs of chlorine ☐, or ≥10,000 lbs of an industrial chemical ☐, at any time over the last 2 years? ☐
   b. Stored ≥10,000 lbs of pressurized flammable material (propane, methane, butane, pentane, etc.) at any time over the last 2 years? ☐
   c. Used ≥10,000 lbs of ammonia ☐, chlorine ☐, halogenated solvents ☐, solvent-based paints ☐, or solvents ☐, or nitrated compound, over the last calendar year? ☐
   d. Generated ≥ one half pound of metal dusts, fumes, or metal turnings, over the last calendar year? ☐
4. Does the facility have any oil filled electrical equipment No ☒ (stop) Yes ☐ ***Forward to TSCA and ask*** Has facility tested oil filled equipment to determine PCB content; No ☐ Yes ☐ number containing PCBs greater than 50 ppm _____ and percent of all equipment tested _____. Is equipment leaking (including wet or weeping equipment)? No ☐ Yes ☐ – ***Get Photo***

CLEAN WATER ACT (CWA) - National Pollution Discharge Elimination System (NPDES), Industrial Pretreatment, Storm Water, & Wetlands

1. Does the facility discharge any wastewater to storm sewers, surface water, or the land? No ☐ (stop) Yes ☒
   If yes, are all wastewater discharges permitted? Yes ☒ No ☐ ***Forward to CWA***
2. Does the facility have process wastewaters that are discharged to a city POTW (Publicly Owned Treatment Works)? No ☐ (stop) Yes ☒
   If yes, are the discharges permitted by: State? ☐, City? ☒ – If yes, Stop here. No ☐ ***Forward to CWA***
   If yes, does the city have a state or EPA approved pretreatment program? Yes ☒ No or Don't Know ☐ ***Forward to CWA***
3. During rainfall events, can storm water carry pollutants from manufacturing, processing, storage, disposal, shipping and receiving areas, or from construction sites >1 acre, to storm sewers or surface water? No ☐ (stop) Yes ☒
   If yes, does the facility have an NPDES permit for these storm water discharges? Yes ☒ No ☐ ***Forward to CWA***
4. Did you see any wastewater discharges not identified by the facility? No ☒ (stop) Yes ☐ - Identify location, time, appearance of discharge: _____ (***Get Photo***) ***Forward to CWA***
5. Does the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No ☒ (stop) Yes ☐
   If yes, have any wetland areas been dredged, filled, channelized, dammed, or had gravel removed from them within the last 5 years?
   No ☐ (stop) Yes ☐ - Identify location and timeframe_____ (***Get Photo***) ***FWD to Wetlands***

SAFE DRINKING WATER ACT (SDWA) - Underground Injection Control (UIC) & Public Water System (PWS) closed

1. Does facility discharge any liquids to the subsurface (septic systems, disposal wells, cesspools, etc.)? No ☒ (stop) Yes ☐ ***Forward to UIC***
   If yes, do these liquid wastes consist of sanitary wastewater only? Yes ☐ No ☐
2. Does facility provide drinking water to 25 people or more from its own source (private well, pond, etc)? No ☒ (stop) Yes ☐ ***Forward to PWS***
   If yes, does the facility test or monitor its drinking water in order to comply with state regulations? Yes ☐ No ☐

CLEAN AIR ACT (CAA) and CFCs closed

1. Do you see any dense, non-steam, smoke or dust emissions leaving the facility property? No ☒ Yes ☐ ***Forward to CAA***
   Source_____ *(Get Photo)*
2. Does the facility have any new air pollution emitting equipment that was constructed or installed in the past 5 years? No ☒ (stop) Yes ☐
   If yes, is equipment permitted? Yes ☐ No ☐ ***Forward to CAA*** *Describe:*_____
3. Does the facility have any cooling units that contain >50 lbs of refrigerant? No ☒ (stop) Yes ☐ ***Forward to CFC***
   If yes, are these units: Self-serviced? ☐ Contract Serviced? ☐ - Service Company:_____
4. Does the facility have a refrigeration process that contains more than 10,000 lbs of ammonia ? No ☒ (stop) Yes ☐ ***Forward to EPCRA/RMP***
5. Does the facility service motor vehicle air conditioning systems? No ☒ (stop) Yes ☐ ***Forward to CFC***

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) and UNDERGROUND STORAGE TANKS (UST) periodically

1. Does the facility generate more than 30-gallons (220 lbs./100kg) of hazardous waste per month or at any one time? No ☐ (stop) Yes ☑
   If yes, does facility have an EPA Hazardous Waste Identification Number? Yes ☑ (stop) No ☐ ***Forward to RCRA***
2. Is hazardous waste treated ☑, stored >90-days ☐, burned ☐ , land filled ☐ , put in surface impoundments ☐ or waste piles ☐ ? closed but going thru remediation with the state
   No ☐ (stop) Yes ☐ If yes, is the facility permitted for above described activity? Yes ☐ No ☐ ***Forward to RCRA***
3. Did you see or does the facility have any large quantities of materials **that the facility claims to be non-hazardous waste material** (>10 drums, roll-offs, waste piles, etc. – exclude clean office trash, cardboard, & packaging type wastes)? No ☐ (stop) Yes ☐

Material Claimed To Be Non-Hazardous	How does the facility know these wastes are non-hazardous?
see report	Testing, industry or manuf. info.., MSDS, etc. ☐ ; None available ☐ ***Forward to RCRA***
	Testing, industry or manuf. info.., MSDS, etc. ☐ ; None available ☐ ***Forward to RCRA***
	Testing, industry or manuf. info.., MSDS, etc. ☐ ; None available ☐ ***Forward to RCRA***
	Testing, industry or manuf. info.., MSDS, etc. ☐ ; None available ☐ ***Forward to RCRA***
	Testing, industry or manuf. info.., MSDS, etc. ☐ ; None available ☐ ***Forward to RCRA***

4. Did you see any leaking hazardous waste containers, drums, or tanks? No ☑ Yes ☐ ***Forward to RCRA***
   Describe:_____ *(Get Photo)*
5. Did you see any signs of spills or releases (e.g., dead or stressed vegetation, stains, discoloration)? No ☐ Yes ☐ ***Forward to RCRA***
   Describe: facility soil & groundwater being remediated *(Get Photo)*
6. Did you see any chemical or waste handling practices that concern you (access to children/public)? No ☑ Yes ☐ ***Forward to RCRA & EPCRA*** Describe:_____ *(Get Photo)*
7. Does the facility have any past or present underground petroleum product or hazardous material tanks? No ☑ Yes ☐ ***Forward to UST***
8. Does the facility have any underground fuel tanks for emergency generators? No ☑ Yes ☐ ***Forward to UST***

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC)

1. Does the facility have any aboveground oil tanks (petroleum, synthetic, animal, fish, vegetable), with an aggregate volume >1,320 gallons?
   No ☑ (stop) Yes ☐ - Does the facility have a certified SPCC Plan? Yes ☐ No ☐ ***Forward to SPCC***
   If yes, are there secondary containment systems for the tanks? Yes ☐ No ☐ ***Forward to SPCC***
   If yes, are any tanks leaking where oil could reach waters of the State or U.S.? No ☐ Yes ☐ *(Get Photo)* ***Forward to SPCC***

ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS) closed facility going thru remediation w/ MDNR

1. Does your facility have an EMS? No ☐ Yes ☐
2. Is the facility's EMS ISO 14001 certified? No ☐ Yes ☐

**** PLEASE TAKE PHOTOS TO DOCUMENT POTENTIAL PROBLEMS***

Version 08.23.05a GRAY SHADED AREAS INDICATE ITEMS YOU NEED TO LOOK FOR DURING VISUAL INSPECTION

Northrop Grumman - Springfield, MO Inspection Forms
Dedriel Newsome to: Saylor, Adam E. 11/22/2010 02:47 PM

Hi Adam,
Attached are the inspection forms to be signed. Please give me a call to discuss when you receive them.

Doc of Recpt.pdf Conf Notice.pdf

Thanks,
Dedriel Newsome
US E. P. A., Region 7
901 North 5th Street
Kansas City, KS 66101
(913)551-7049
(913)551-9049 (fax)

"Saylor, Adam E." Ms. Newsome, Please find the attached LDR form for Uniform Hazardous Wast... 11/19/2010 12:01:54 PM

From: "Saylor, Adam E." <Adam.Saylor@ngc.com>
To: Dedriel Newsome/R7/USEPA/US@EPA
Date: 11/19/2010 12:01 PM
Subject: Northrop Grumman - Springfield, MO

Ms. Newsome,

Please find the attached LDR form for Uniform Hazardous Waste Manifest 002991964FLE that you requested. I look forward to speaking with you on Monday.

Regards,

Adam

<<002991964FLE Signed LDR.TIF>>

ATTACHMENT 2 Page 1 of 4

Adam Saylor, CHMM

Sr. Environmental Engineer

Northrop Grumman Electronic Systems

Phone: (410) 993-7080

Fax: (410) 981-1946

Cellular: (410) 570-1030

adam.saylor@ngc.com[attachment "002991964FLE Signed LDR.TIF" deleted by Dedriel Newsome/R7/USEPA/US]

ATTACHMENT 2 Page 2 of 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CONFIDENTIALITY NOTICE

Facility Name	
Northrop Grumman	
Facility Address	
Springfield, MO	
Inspector (print)	
Dedriel Newsome	
U.S. EPA, Region VII, 901 N. 5th St., Kansas City, KS 66101	Date 11/18/10

The United States Environmental Protection Agency (EPA) is obligated, under the Freedom of Information Act, to release information collected during inspections to persons who submit requests for that information. The Freedom of Information Act does, however, have provisions that allow EPA to withhold certain confidential business information from public disclosure. To claim protection for information gathered during this inspection you must request that the information be held CONFIDENTIAL and substantiate your claim in writing by demonstrating that the information meets the requirements in 40 CFR 2, Subpart B. The following criteria in Subpart B must be met:

1. Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.

2. No statute specifically requires disclosure of the information.

3. Disclosure of the information would cause substantial harm to your company's competitive position.

Information that you claim confidential will be held as such pending a determination of applicability by EPA.

I have received this Notice and DO NOT want to make a claim of confidentiality at this time.	
Facility Representative Provided Notice (print)	Signature/Date

I have received this Notice and DO want to make a claim of confidentiality.	
Facility Representative Provided Notice (print)	Signature/Date

Information for which confidential treatment is requested;

(Rev:1/19/00)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CONFIDENTIALITY NOTICE

Facility Name	
Northrop Grumman	
Facility Address	
Springfield, MO	
Inspector (print)	
Dedriel Newsome	
U.S. EPA, Region VII, 901 N. 5th St., Kansas City, KS 66101	Date 11/18/10

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Facility Representative Provided Notice (print)	Signature/Date

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Facility Representative Provided Notice (print)	Signature/Date

Information for which confidential treatment is requested;

(Rev:1/19/00)

2 3 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RECEIPT FOR DOCUMENTS AND SAMPLES

Facility Name
Northrop Grumman

Facility Address
Springfield, MO

Documents Collected? YES ✓ (list below) NO___

Samples Collected? YES___ (list below) NO ✓ Split Samples: YES___ NO ✓

Documents/Samples were: 1) Received no charge ✓ 2) Borrowed___ 3) Purchased___

Amount Paid: $_____ Method: Cash___ Voucher___ To Be Billed___

The documents and samples described below were collected in connection with the administration and enforcement of the applicable statute under which the information is obtained.

==========

Receipt for the document(s) and/or sample(s) described below is hereby acknowledged:

Manifest Documents (26 pgs)
Facility Layout (1 pg)

Facility Representative (print)	Signature/Date
Inspector (print)	Signature/Date
Dedriel Newsome	Dedriel Newsome 11/18/10
U.S. EPA, Region VII, 901 N. 5th Street, Kansas City, KS 66101	

(rev:1/20/93)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RECEIPT FOR DOCUMENTS AND SAMPLES

Facility Name
Northrup Grumman
Facility Address
Springfield, MO

Documents Collected? YES ✓ (list below) NO ___

Samples Collected? YES ___ (list below) NO ✓ Split Samples: YES ___ NO ✓

Documents/Samples were: 1) Received no charge ✓ 2) Borrowed ___ 3) Purchased ___

Amount Paid: $_____ Method: Cash ___ Voucher ___ To Be Billed ___

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Facility Layout (1 pgs)

Facility Representative (print)	Signature/Date
Inspector (print)	Signature/Date
Dedriel Newsome	Dedriel Newsome 11/18/10
U.S. EPA, Region VII, 901 N. 5th Street, Kansas City, KS 66101	

(rev:1/20/93)

RE: EXTERNAL:Northrop Grumman - Springfield, MO Inspection Forms
Saylor, Adam E.
to:
Dedriel Newsome
11/23/2010 11:49 AM
Show Details

4 Attachments

Soil Core Analytical.pdf Consolidation Sediment Analytical.pdf Receipt of Documents.pdf Confidentiality Notice.pdf

Dedriel,

Please find the attached analytical you requested for the consolidation sediment drum and the Sanitary Lagoon soil cores drum. As discussed onsite with Stantec Consulting, generator knowledge was utilized as the basis for the non-hazardous waste classification for both drums. Sampling data has been collected from various sampling points during site investigations in both the consolidation and Sanitary Lagoon areas. A review of the cumulative data gathered over time during these sampling events provided Northrop Grumman the ability to make the non-hazardous waste determinations via generator knowledge. Confirmation sampling of the drummed waste has subsequently been completed and the attached analytical verifies that the non-hazardous waste classification based on generator knowledge is correct.

Also included are signed copies of the Confidentiality Notice and Receipt for Documents that you requested.

Please contact me if you need any further information or I can answer any questions.

Thank You

Adam

Adam Saylor, CHMM
Sr. Environmental Engineer
Northrop Grumman Electronic Systems
Phone: (410) 993-7080
Fax: (410) 981-1946
Cellular: (410) 570-1030
adam.saylor@ngc.com

-----Original Message-----
From: Newsome.Dedriel@epamail.epa.gov [mailto:Newsome.Dedriel@epamail.epa.gov]
Sent: Monday, November 22, 2010 3:47 PM
To: Saylor, Adam E.
Subject: EXTERNAL:Northrop Grumman - Springfield, MO Inspection Forms

Hi Adam,
Attached are the inspection forms to be signed. Please give me a call to discuss when you receive them.

(See attached file: Doc of Recpt.pdf)(See attached file: Conf Notice.pdf)

Thanks,
Dedriel Newsome
US E. P. A., Region 7
901 North 5th Street
Kansas City, KS 66101
(913)551-7049
(913)551-9049 (fax)

From: "Saylor, Adam E."

ATTACHMENT 3 Page 1 of 10

<Adam.Saylor@ngc.com>

To: Dedriel Newsome/R7/USEPA/US@EPA

Date: 11/19/2010 12:01 PM

Subject: Northrop Grumman - Springfield, MO

Ms. Newsome,

Please find the attached LDR form for Uniform Hazardous Waste Manifest 002991964FLE that you requested. I look forward to speaking with you on Monday.

Regards,

Adam

<<002991964FLE Signed LDR.TIF>>

Adam Saylor, CHMM

Sr. Environmental Engineer

Northrop Grumman Electronic Systems

Phone: (410) 993-7080

Fax: (410) 981-1946

Cellular: (410) 570-1030

adam.saylor@ngc.com[attachment "002991964FLE Signed LDR.TIF" deleted by Dedriel Newsome/R7/USEPA/US]

ATTACHMENT 3 Page 2 of 10

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CONFIDENTIALITY NOTICE

Facility Name	
Northrop Grumman Guidance and Electronics Company Inc.	
Facility Address	
Springfield, MO	
Inspector (print)	
Dedriel Newsome	
U.S. EPA, Region VII, 901 N. 5th St., Kansas City, KS 66101	Date 11/18/10

The United States Environmental Protection Agency (EPA) is obligated, under the Freedom of Information Act, to release information collected during inspections to persons who submit requests for that information. The Freedom of Information Act does, however, have provisions that allow EPA to withhold certain confidential business information from public disclosure. To claim protection for information gathered during this inspection you must request that the information be held CONFIDENTIAL and substantiate your claim in writing by demonstrating that the information meets the requirements in 40 CFR 2, Subpart B. The following criteria in Subpart B must be met:

1. Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.

2. No statute specifically requires disclosure of the information.

3. Disclosure of the information would cause substantial harm to your company's competitive position.

Information that you claim confidential will be held as such pending a determination of applicability by EPA.

I have received this Notice and DO NOT want to make a claim of confidentiality at this time.	
Facility Representative Provided Notice (print)	Signature/Date
Adam Saylor	11/23/10

I have received this Notice and DO want to make a claim of confidentiality.	
Facility Representative Provided Notice (print)	Signature/Date

Information for which confidential treatment is requested:

(Rev: 1/19/00)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RECEIPT FOR DOCUMENTS AND SAMPLES

Facility Name
Northrup Grumman Guidance and Electronics Company Inc
Facility Address
Springfield, MO

Documents Collected? YES ✓ (list below) NO___

Samples Collected? YES___ (list below) NO ✓ Split Samples: YES___ NO ✓

Documents/Samples were: 1) Received no charge ✓ 2) Borrowed___ 3) Purchased___

Amount Paid: $_____ Method: Cash___ Voucher___ To Be Billed___

The documents and samples described below were collected in connection with the administration and enforcement of the applicable statute under which the information is obtained.

==========

Receipt for the document(s) and/or sample(s) described below is hereby acknowledged:

Manifest Documents (26 pgs)
Facility Layout (1 pg)
Analytical for Waste Determination (4 pages)

Facility Representative (print)	Signature/Date
Adam Saylor	11/23/10
Inspector (print)	**Signature/Date**
Dedriel Newsome	Dedriel Newsome 11/18/10

U.S. EPA, Region VII, 901 N. 5th Street, Kansas City, KS 66101

(rev: 1/20/93)

TEKLAB, INC.

5445 HORSESHOE LAKE ROAD
COLLINSVILLE, ILLINOIS 62234

ENVIRONMENTAL TESTING LABORATORY

TEL: 618-344-1004
FAX: 618-344-1005

LABORATORY RESULTS

Client: Stantec
WorkOrder: 10110874
Lab ID: 10110874-002
Report Date: 19-Nov-10

Client Project: Northrop Grumman Springfield MO
Client Sample ID: Sanitary Lagoon Soil Cores
Collection Date: 11/18/2010 1:25:00 PM
Matrix: SOLID

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Analyst
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	11/19/2010 3:10:23 PM	JMW
Barium	NELAP	0.0500		**0.527**	mg/L	1	11/19/2010 3:10:23 PM	JMW
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	11/19/2010 3:10:23 PM	JMW
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	11/19/2010 3:10:23 PM	JMW
Lead	NELAP	0.400		**< 0.400**	mg/L	1	11/19/2010 3:10:23 PM	JMW
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	11/19/2010 3:10:23 PM	JMW
Silver	NELAP	0.100		**< 0.100**	mg/L	1	11/19/2010 3:10:23 PM	JMW
SW-846 1311, 5030, 8260B, VOLATILE ORGANIC COMPOUNDS IN TCLP EXTRACT BY GC/MS								
1,1-Dichloroethene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
1,2-Dichloroethane	NELAP	0.500		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
1,4-Dichlorobenzene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
2-Butanone	NELAP	5.00		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
Benzene	NELAP	0.200		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
Carbon tetrachloride	NELAP	0.500		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
Chlorobenzene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
Chloroform	NELAP	0.500		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
Tetrachloroethene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
Trichloroethene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
Vinyl chloride	NELAP	0.200		**ND**	mg/L	100	11/19/2010 3:10:00 PM	CCF
Surr: 1,2-Dichloroethane-d4		74.7-129		**96.1**	%REC	100	11/19/2010 3:10:00 PM	CCF
Surr: 4-Bromofluorobenzene		86-119		**104.4**	%REC	100	11/19/2010 3:10:00 PM	CCF
Surr: Dibromofluoromethane		81.7-123		**106.2**	%REC	100	11/19/2010 3:10:00 PM	CCF
Surr: Toluene-d8		84.3-114		**94.4**	%REC	100	11/19/2010 3:10:00 PM	CCF
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	11/19/2010	MEK

Sample Narrative

TEKLAB, INC.

5445 HORSESHOE LAKE ROAD
COLLINSVILLE, ILLINOIS 62234

ENVIRONMENTAL TESTING LABORATORY

TEL: 618-344-1004
FAX: 618-344-1005

RECEIVING CHECK LIST

Client: Stantec
Project: Northrop Grumman Springfield MO
Lab Order: 10110874
Report Date: 19-Nov-10

Carrier: Greg Michael

Received By: TWM

Completed by: Timothy W. Mathis
On: 18-Nov-10

Reviewed by: Elizabeth A. Hurley
On: 19-Nov-10

Pages to follow: Chain of custody [1] Extra pages included [0]

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 1.2
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water - vials have zero headspace?	Yes ☐	No ☐	No VOA vials ☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. 1 of 1 Work Order # 10110874

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: STANTEC Consulting
Address: 3223 S. MEADOWBROOK RD
City / State / Zip: SPRINGFIELD IL 62711
Contact: GREG MICHAEL Phone: 217/698-7247 x112
E-Mail: greg.michael@stantec.com Fax:

Samples on: ☒ Ice ☐ Blue Ice ☐ No Ice 12 °C
Preserved in: ☒ Lab ☐ Field FOR LAB USE ONLY
Lab Notes: * 8RCRA per Greg Michael. SAH 11/19/10
Comments: 1 DAY

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☒ No
- Are these samples known to be hazardous? ☐ Yes ☒ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☒ No

Project Name / Number	Sample Collector's Name
NORTHROP GRUMMAN SPRINGFIELD MO	GREG MICHAEL

Results Requested: ☐ Standard ☒ 1-2 Day (100% Surcharge) ☐ Other_____ ☐ 3 Day (50% Surcharge)

Billing Instructions:

Lab Use Only	Sample Identification	Date/Time Sampled	# and Type of Containers: UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	Other	MATRIX: Water	Drinking Water	Soil	Sludge	Sp. Waste	INDICATE ANALYSIS REQUESTED: TCLP-VOC	TCLP-METALS*
10110874 001	CONSOLIDATION SEDIMENT	11/18/10 1340	2										X			X	X
002	SANITARY LAGOON SOIL CORES	11/18/10 1325	1										X			X	X

Relinquished By	Date / Time	Received By	Date / Time
GREG MICHAEL	11/18/10 1815		11.18.10 1815

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE & YELLOW – LAB PINK – SAMPLER'S COPY

ATTACHMENT 3 Page 7 of 10

TEKLAB, INC.

5445 HORSESHOE LAKE ROAD
COLLINSVILLE, ILLINOIS 62234

ENVIRONMENTAL TESTING LABORATORY

TEL: 618-344-1004
FAX: 618-344-1005

LABORATORY RESULTS

Client: Stantec
WorkOrder: 10110874
Lab ID: 10110874-001
Report Date: 19-Nov-10

Client Project: Northrop Grumman Springfield MO
Client Sample ID: Consolidation Sediment
Collection Date: 11/18/2010 1:40:00 PM
Matrix: SOLID

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Analyst
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	11/19/2010 3:48:17 PM	JMW
Barium	NELAP	0.0500		**1.02**	mg/L	1	11/19/2010 3:48:17 PM	JMW
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	11/19/2010 3:48:17 PM	JMW
Chromium	NELAP	0.100		**0.123**	mg/L	1	11/19/2010 3:48:17 PM	JMW
Lead	NELAP	0.400		**< 0.400**	mg/L	1	11/19/2010 3:48:17 PM	JMW
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	11/19/2010 3:48:17 PM	JMW
Silver	NELAP	0.100		**< 0.100**	mg/L	1	11/19/2010 3:48:17 PM	JMW
SW-846 1311, 5030, 8260B, VOLATILE ORGANIC COMPOUNDS IN TCLP EXTRACT BY GC/MS								
1,1-Dichloroethene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
1,2-Dichloroethane	NELAP	0.500		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
1,4-Dichlorobenzene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
2-Butanone	NELAP	5.00		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
Benzene	NELAP	0.200		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
Carbon tetrachloride	NELAP	0.500		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
Chlorobenzene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
Chloroform	NELAP	0.500		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
Tetrachloroethene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
Trichloroethene	NELAP	0.500		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
Vinyl chloride	NELAP	0.200		**ND**	mg/L	100	11/19/2010 2:12:00 PM	CCF
Surr: 1,2-Dichloroethane-d4		74.7-129		**95.4**	%REC	100	11/19/2010 2:12:00 PM	CCF
Surr: 4-Bromofluorobenzene		86-119		**102.5**	%REC	100	11/19/2010 2:12:00 PM	CCF
Surr: Dibromofluoromethane		81.7-123		**105.7**	%REC	100	11/19/2010 2:12:00 PM	CCF
Surr: Toluene-d8		84.3-114		**96.1**	%REC	100	11/19/2010 2:12:00 PM	CCF
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	11/19/2010	MEK

Sample Narrative

TEKLAB, INC.

5445 HORSESHOE LAKE ROAD
COLLINSVILLE, ILLINOIS 62234

ENVIRONMENTAL TESTING LABORATORY

TEL: 618-344-1004
FAX: 618-344-1005

RECEIVING CHECK LIST

Client: Stantec
Project: Northrop Grumman Springfield MO
Lab Order: 10110874
Report Date: 19-Nov-10

Carrier: Greg Michael

Received By: TWM

Completed by: Timothy W. Mathis
On: 18-Nov-10

Reviewed by: Elizabeth A. Hurley
On: 19-Nov-10

Pages to follow: Chain of custody [1] Extra pages included [0]

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 1.2
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water - vials have zero headspace?	Yes ☐	No ☐	No VOA vials ☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. 1 of 1 Work Order # 10110874

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: STANTEC Consulting
Address: 3223 S. MEADOWBROOK RD
City / State / Zip: SPRINGFIELD IL 62711
Contact: GREG MICHAEL Phone: 217/698-7247 x112
E-Mail: greg.michael@stantec.com Fax:

Samples on: ☒ Ice ☐ Blue Ice ☐ No Ice 1.2 °C
Preserved in: ☒ Lab ☒ Field FOR LAB USE ONLY
Lab Notes: X 8RCRA per Greg Michael. SAH 11/19/10
Comments: 1 DAY

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☒ No
- Are these samples known to be hazardous? ☐ Yes ☒ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☒ No

Project Name / Number: NORTHROP GRUMMAN SPRINGFIELD MO
Sample Collector's Name: GREG MICHAEL

Results Requested: ☐ Standard ☒ 1-2 Day (100% Surcharge) ☐ Other_____ ☐ 3 Day (50% Surcharge)
Billing Instructions:

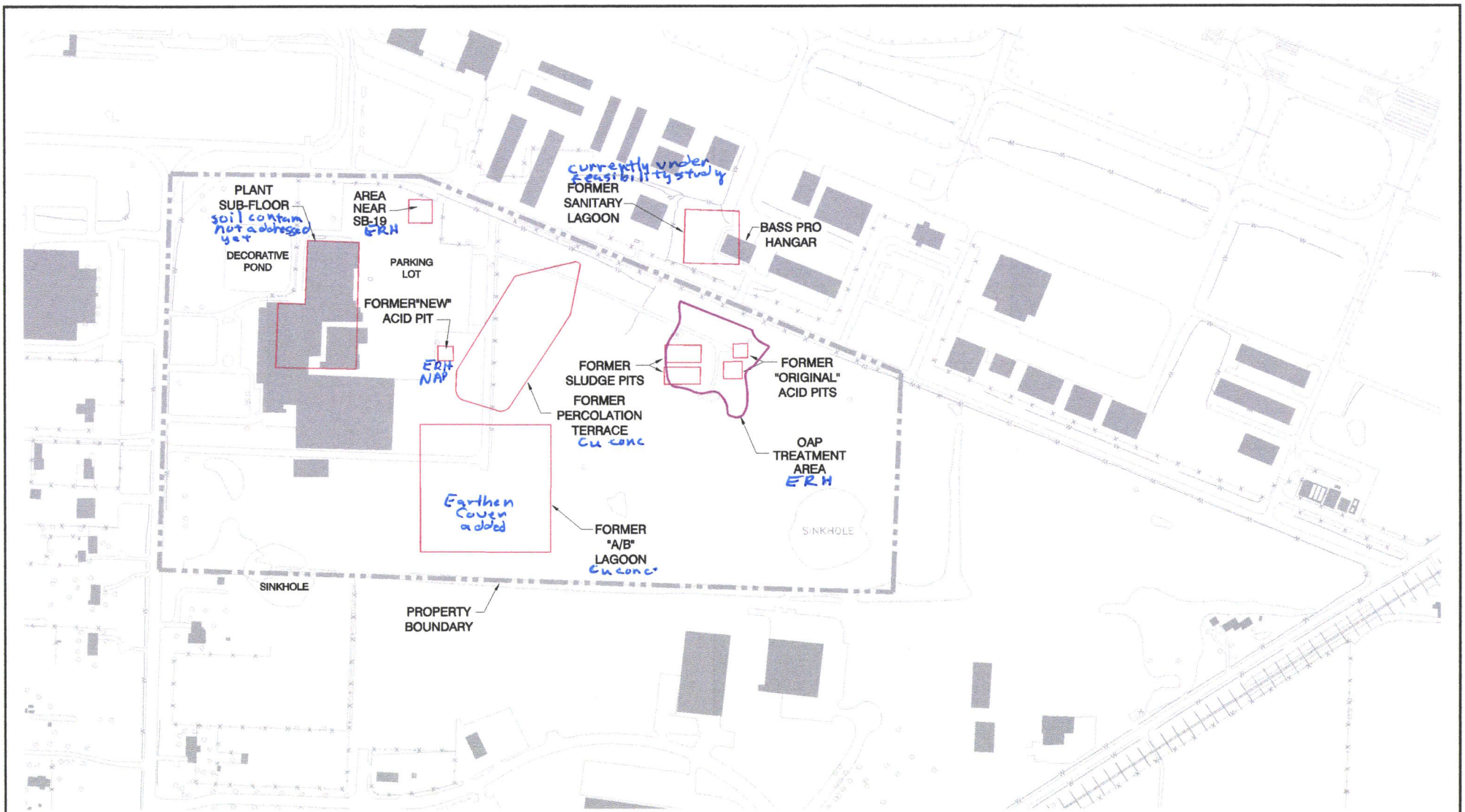
Lab Use Only	Sample Identification	Date/Time Sampled	# and Type of Containers: UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	Other	MATRIX: Water	Drinking Water	Soil	Sludge	Sp. Waste	INDICATE ANALYSIS REQUESTED: TCLP-VOC	TCLP-METALS*
10110874 001	CONSOLIDATION SEDIMENT	11/18/10 1340	2										X			X	X
002	SANITARY LAGOON SOIL CORES	11/18/10 1325	3										X			X	X

Relinquished By	Date / Time	Received By	Date / Time
GREG MICHAEL	11/18/10 1815		11.18.10 1815

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE & YELLOW – LAB PINK – SAMPLER'S COPY

ATTACHMENT 3 Page 10 of 10



LEGEND

AREA OF CONCERN

0 300 600

APPROXIMATE SCALE (FEET)

N

Stantec

3223 SOUTH MEADOWBROOK, SUITE C
SPRINGFIELD, ILLINOIS 62711
PHONE: (217) 698-7247 FAX: (217) 698-8538

FOR:
NORTHROP GRUMMAN GUIDANCE & ELECTRONICS COMPANY, INC
FORMER LITTON SYSTEMS, INC.
4811 WEST KEARNEY
SPRINGFIELD, MO 65803

SITE MAP SHOWING AREAS OF CONCERN

FIGURE:

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
182801056	JO	MD	MD	09/09/2010

FILEPATH:L:\Northrop Grumman ITD\Northrop Grumman 2009\1826-01056\A-3-SM.dwg|jooldfield|Sep 09, 2010 at 10:19|Layout: F2 Showing Area of Concern

ATTACHMENT 4 Page 1 of 1

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) DK2512726 SC PPW 4/24/2009

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
MOD007152903	1	(800) 483-3718	002991964 FLE

GENERATOR

5. Generator's Name and Mailing Address
Northrop Grumman Guidance and Electronics Company
Northrop Grumman PO Box 1693 MS1401
Baltimore, MD 21203

Generator's Site Address (if different than mailing address)
4811 W Kearney
Springfield,MO 65803

Generator's Phone: (417) 829-5311 ATTN:Jeff Kuzemchak

6. Transporter 1 Company Name
Clean Harbors Environmental Services Inc
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name
~~Clean Harbors Environmental Services Inc~~
U.S. EPA ID Number: ~~MAD039322250~~

8. Designated Facility Name and Site Address
Clean Harbors Lone Mountain LLC
5 miles east & 1 mile north of Jct. US Highways 281 & 412
Waynoka, OK 73860
Facility's Phone: (580) 697-3500
U.S. EPA ID Number: OKD065438376

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S., 9, PG III	1	CM	~~75~~ 4 BC	T	F002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.CH392720B ERG#171
BC BC
CHRT 25414

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Josiah Ball on behalf of Northrop Grumman
Signature: [signature]
Month 9 Day 28 Year 09

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Glen Wichert
Signature: Glen Wichert
Month 09 Day 28 Year 09

Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
[illegible] at Lone Mtn weight per Jeff Kuzemchak & Adam Taylor 10-1-9 BC
Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Brandy Collier
Signature: Brandy Collier
Month 09 Day 4 27 Year 09

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

ATTACHMENT 5a Page 1 of 2

CleanHarbors
ENVIRONMENTAL SERVICES®

Land Disposal Restriction Notification Form

Printed Date :Sep 23, 2009

MANIFEST INFORMATION

Generator : Northrop Grumman Guidance and Electronics C

Address: 4811 W Kearney
Springfield,MO 65803

EPA ID #: M O D 0 0 7 1 5 2 9 0 3

Manifest Tracking Info.
002991964FLE

Sales Order No: DK2512726

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH392720B	NON-WASTEWATER	4 (Meets LDR Standards)

EPA Waste Code	EPA Waste SubCategory
F002	NONE

Certification	Applies to Manifest Line Items
I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies ith the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.	1.

Waste analysis data, where available, is attached.

Signature : _____ Print Name _____

Title : _____ Date : _____

Northrop Grumman - Springfield, MO
Saylor, Adam E.
to:
Dedriel Newsome
11/19/2010 12:01 PM
Show Details

History: This message has been replied to.

1 Attachment

002991964FLE Signed LDR.TIF

Ms. Newsome,

Please find the attached LDR form for Uniform Hazardous Waste Manifest 002991964FLE that you requested. I look forward to speaking with you on Monday.

Regards,

Adam

<<002991964FLE Signed LDR.TIF>>

Adam Saylor, CHMM

Sr. Environmental Engineer

Northrop Grumman Electronic Systems

Phone: (410) 993-7080

Fax: (410) 981-1946

Cellular: (410) 570-1030

adam.saylor@ngc.com

ATTACHMENT 5a.i Page 1 of 2

CleanHarbors
ENVIRONMENTAL SERVICES®

Land Disposal Restriction Notification Form

Printed Date :Sep 23, 2009

MANIFEST INFORMATION

Generator : Northrop Grumman Guidance and Electronics C

Address: 4811 W Kearney
Springfield,MO 65803

EPA ID #: M O D 0 0 7 1 5 2 9 0 3

Manifest Tracking Info.

002991964FLE

Sales Order No: DK2512726

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH392720B	NON-WASTEWATER	4 (Meets LDR Standards)

EPA Waste Code	EPA Waste SubCategory
F002	NONE

Certification	Applies to Manifest Line Items
I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.	1.

Waste analysis data, where available, is attached.

Signature : [signature] Print Name Josiah H. Ball

Title : Geologist Date : 9-28-09

DK2512733 SC PPW 4/24/2009

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MOD007152903
2. Page 1 of: 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 002991965 FLE

5. Generator's Name and Mailing Address:
Northrop Grumman Guidance and Electronics Company
Northrop Grumman PO Box 1693 MS1401
Baltimore, MD 21203
Generator's Phone: (417) 829-5311 ATTN: Jeff Kuzemchak

Generator's Site Address (if different than mailing address):
4811 W Kearney
Springfield, MO 65803

6. Transporter 1 Company Name: Clean Harbors Environmental Services Inc — U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name: ~~Clean Harbors Environmental Services Inc~~ — U.S. EPA ID Number: ~~MAD039322250~~

8. Designated Facility Name and Site Address:
Clean Harbors Lone Mountain LLC
5 miles east & 1 mile north of Jct. US Highways 281 & 412
Waynoka, OK 73860
Facility's Phone: (580) 697-3500
U.S. EPA ID Number: OKD065438376

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NONE. WASTE NON HAZARDOUS. NON D.O.T. REGULATED. N/A	1	CM	~~15~~ 9	T	NONE
	2.					
	3.					
	4.					

BC

14. Special Handling Instructions and Additional Information
1.CH392722B
CHRT-25725

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Josiah Ball on behalf of Northrop Grumman — Signature: [signature] — Month 9 Day 28 Year 09

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: ______ Date leaving U.S.: ______
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: [signature] — Signature: Bobby Stamps — Month 09 Day 28 Year 09
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
Sect 11 corrected to Lone Mtn weight per Jeff Kuzemchak Adam Sayre 10-1-9BC

18b. Alternate Facility (or Generator) — U.S. EPA ID Number:
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
09-4652
Printed/Typed Name: Brandy Collier — Signature: Brandy Collier — Month 09 Day 29 Year 09

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.
DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

ATTACHMENT 5b Page 1 of 1

DK2285049

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

SC MA PPW 2/26/2009 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MOD007152903

2. Page 1 of 4

3. Emergency Response Phone: (800) 483-3718

4. Manifest Tracking Number: 001191283 FLE

5. Generator's Name and Mailing Address:
Northrop Grumman Guidance and Electronics Company
4811 W Kearney
Springfield, MO 65803

Generator's Site Address (if different than mailing address):
4811 W Kearney
Springfield MO 65803

Generator's Phone: 4178296321 ATTN: Karen Kulan

6. Transporter 1 Company Name: Clean Harbors Environmental Services Inc — U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name: Clean Harbors Environmental Services — U.S. EPA ID Number: MAD039322250

8. Designated Facility Name and Site Address:
Clean Harbors Grassy Mountain LLC
3 Miles East 7 Miles North of Knolls
Grantsville, UT 84029
Facility's Phone: 4355548900

U.S. EPA ID Number: UTD991301748

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (TOLUENE, TRICHLOROETHYLENE), 9, PG III	011	DM	04950	P	F002	F003	F005
	2.							
	3.							
	4.							

CR
FS
OPPC

14. Special Handling Instructions and Additional Information:
1. CH232471 – 11X55

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Greg Michael on Behalf of Northrop Grumman Avionics & Electronics Co, Inc — Signature: [signature] — Month 04 Day 09 Year 2009

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: ______ Date leaving U.S.: ______
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: [signature] — Signature: [signature] — Month 4 Day 9 Year 09
Transporter 2 Printed/Typed Name: James Matthew Noble — Signature: James Matthew Noble — Month 04 Day 13 Year 09

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number:
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
2009002336
Printed/Typed Name: Ellene DeZeeuw — Signature: Ellene DeZeeuw — Month 05 Day 07 Year 09

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

2. Generator ID Number: MAD007158703

22. Page: 2

23. Manifest Tracking Number: 001191283 FLE

24. Generator's Name: Northrop Grumman Guidance and Electronics Company

25. Transporter 3 Company Name: Smith Systems — U.S. EPA ID Number: NED986382133

26. Transporter 4 Company Name: Clean Harbors Env. Serv Inc — U.S. EPA ID Number: MAD032732223

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

TPO

32. Special Handling Instructions and Additional Information

GENERATOR

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name: Bryan Russell — Signature: [signature] — Month/Day/Year: 10/16/09

34. Transporter 4 Acknowledgment of Receipt of Materials
Printed/Typed Name: Loretta A. Simms — Signature: Loretta A. Simms — Month/Day/Year: 04/17/09

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number	22. Page	23. Manifest Tracking Number
MAD007152903	3	001191283FLE

24. Generator's Name: Northrop Grumman Guidance & Electronics Company

25. Transporter 5 Company Name: Clean Harbors — U.S. EPA ID Number: MAD039322250

26. Transporter 4 Company Name: Clean Harbors Env. Services Inc. — U.S. EPA ID Number: NJRD034322220

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

GENERATOR

TRANSPORTER

33. Transporter 5 Acknowledgment of Receipt of Materials
Printed/Typed Name: James Hamilton — Signature: [signature] — Month: 4 Day: 23 Year: 09

34. Transporter 4 Acknowledgment of Receipt of Materials
Printed/Typed Name: [illegible] — Signature: [signature] — Month: 4 Day: 24 Year: 09

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number	22. Page	23. Manifest Tracking Number
MDD007152903	4	001191283 FLE

24. Generator's Name: Northrop Grumman Guidance and Electronics Company

25. Transporter 7 Company Name: Clean Harbors — U.S. EPA ID Number: MAD039322250

26. Transporter 8 Company Name: Clean Harbors — U.S. EPA ID Number: MAD039322250

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

FPL

32. Special Handling, Instructions and Additional Information

TRANSPORTER

33. Transporter 7 Acknowledgment of Receipt of Materials
Printed/Typed Name: Vic Wheeler — Signature — Month: 4 Day: 30 Year: 09

34. Transporter 8 Acknowledgment of Receipt of Materials
Printed/Typed Name: Monica Carlisle — Signature — Month: 4 Day: 30 Year: 09

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: MDD071529103

22. Page: 5

23. Manifest Tracking Number: 006194283FLE

24. Generator's Name: Northrop Grumman

25. Transporter 9 Company Name: Clean Harbors — U.S. EPA ID Number: MAD039822280

26. Transporter 10 Company Name — U.S. EPA ID Number:

GENERATOR

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

RQ

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter 9 Acknowledgment of Receipt of Materials
Printed/Typed Name: Felipe Garcia — Signature — Month: 5 Day: 17 Year: 09

34. Transporter 10 Acknowledgment of Receipt of Materials
Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC
LAND DISPOSAL RESTRICTION FORM (LDR-1)

MANIFEST No.: 005911283 FLE

THE HAZARDOUS WASTE IDENTIFIED ON THE HAZARDOUS WASTE MANIFEST IDENTIFIED ABOVE AND BEARING THE U.S. EPA HAZARDOUS WASTE CODES LISTED BELOW ARE RESTRICTED WASTES WHICH ARE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT UNDER THE LAND DISPOSAL RESTRICTIONS, 40 CFR PART 268 / RCRA, AND/OR 3004(D) IN ACCORDANCE WITH 40 CFR 268.7(a), THE EPA WASTE CODE, WASTE SUBCATEGORY, AND TREATABILITY GROUP'S, AS APPLICABLE, ARE INCLUDED BELOW

INSTRUCTIONS -- COMPLETE ALL SECTIONS REFER TO PAGE 3 OF THIS FORM FOR KEY TERMS/DEFINITIONS.

Column 1 - Line Item. Enter the manifest line item number (e.g., 11a) that corresponds to the waste code(s).
Column 2 - Waste Codes/Subcategory: Check off all applicable waste codes. For D001 through D043, also check applicable subcategory, for F001 through F005, check applicable constituents.
Column 3 - Wastewater/Non-wastewater: Check off "WW" for wastewater and "Non-WW" for non-wastewaters.
Column 4 - LDR Handling Code: Circle the appropriate handling code, as follows:

1 = The waste is a characteristic hazardous waste D001, D002, D003, D004-D011, or D018-43 which is intended for treatment/disposal in a CWA system, CWA-equivalent system, or Class I SDWA system. Underlying Hazardous Constituents (UHC's) are NOT required to be identified.

1A = The waste is a characteristic hazardous waste D001 High TOC Ignitable Liquids Subcategory (i.e., greater than or equal to 10% TOC). Pursuant to 40 CFR 268.40, the waste must be treated using organic recovery (RORGS) or combustion (CMBST) technology. UHC's are NOT required to be identified.

2 = The waste is a characteristic hazardous waste D001 (other than High TOC Ignitable Liquids), D002, D003 Explosive, Water Reactive or Other Reactive subcategory, D004-D011, D012-17 non-wastewater, or D018-43 which is intended for treatment/disposal in a non-CWA system, non-CWA-equivalent system, or non-Class I SDWA system located in the United States. All UHC's which are reasonably expected to be present must be identified, except for D001 waste that is intended to be treated using organic recovery (RORGS) or combustion (CMBST) technologies. Identify UHC's by completing Sections I and IV of CHI Form LDR-1 Addendum and attach completed Addendum to this form.

3 = The waste is a characteristic (i.e., D-code) or listed (i.e., F-, K-, U-, or P-code) hazardous waste which is intended for export and treatment/disposal at a facility located outside the United States. LDR treatment standards do not apply to hazardous waste treated/disposed in a foreign country, and per USEPA guidance, the identification of UHC's (if applicable) is not required for hazardous waste that is intended to be exported. Note however that if the exported waste is subsequently returned for treatment/disposal in the United States, all applicable LDR regulations would apply and a revised LDR notification would be required.

4 = The waste meets the definition of hazardous debris pursuant to 40 CFR 268.2(h) and is intended for treatment/ disposal in compliance with the alternate debris treatment technologies of 40 CFR 268.45. In accordance with the requirements of 40 CFR 268.7(a)(2) : the contaminants subject to treatment (CSTT's) must be identified as part of this notification. Identify CSTT's by completing Section III and IV of the CHI Form LDR-1 Addendum and attach completed Addendum to this form. These constituents are being treated to comply with 40 CFR 268.45.

5 = The waste is a characteristic waste D003 Reactive Sulfide, Reactive Cyanide, or Unexploded Ordnance subcategory, a characteristic waste D012- 17 wastewater, or a listed (i.e., F-, K-, U-, or P-code) hazardous waste. UHC's are NOT required to be identified.

6 = The waste is a lab pack that is intended for incineration using the alternative lab pack treatment standard under 40 CFR 268.42(c). UHC's are NOT required to be identified; however, the generator must complete and attach the lab pack certification statement on CHI Form LDR-LP. Note that in accordance with 40 CFR Part 268 Appendix IV, lab packs which contain waste codes D009, F019, K003, K004, K005, K006, K062, K071, K100, K106, P010, P011, P012, P076, P078, U134, and U151 are not eligible for alternative lab pack treatment standard.

*** NOTE: IF THE WASTE IS A SOIL CONTAMINATED WITH A LISTED OR CHARACTERISTIC WASTE AND THE GENERATOR WANTS TO USE THE ALTERNATE TREATMENT STANDARD FOR SOILS, CONTACT CORPORATE COMPLIANCE FOR THE APPROPRIATE LDR NOTIFICATION FORM.

SECTION I. CHARACTERISTIC WASTES D001 THROUGH D043

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
_____	[ ] D001 Ignitables, except High TOC subcategory	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D001 High TOC Ignitable Liquids Subcategory (Greater than or equal to 10% TOC)	[ ] Non-WW only	1A 3 6
_____	[ ] D002 Corrosives	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D003		
	[ ] Reactive Sulfide, per 261.23 (a)(5)	[ ] WW [ ] Non-WW	1 3 4 5 6
	[ ] Reactive Cyanide, per 261.23(a)(5)	[ ] WW [ ] Non-WW	1 3 4 5 6
	[ ] Explosive, per 261.23(a)(6), (7) & (8)	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] Water Reactive, per 261.23(a)(2), (3) & (4)	[ ] Non-WW only	1 2 3 4 6
	[ ] Other Reactive, per 261.23(a)(1)	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] Unexploded Ordnance, Emergency Response	[ ] WW [ ] Non-WW	1 3 4 5 6
_____	[ ] D004 Arsenic	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D005 Barium	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D006		
	[ ] Cadmium	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] Cadmium Containing Batteries	[ ] Non-WW only	2 3 6
_____	[ ] D007 Chromium	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D008		
	[ ] Lead	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] Lead Acid Batteries	[ ] Non-WW only	2 3 6

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
LAND DISPOSAL RESTRICTIONS FORM LDR-1

MANIFEST NO. 100491233 FLE

SECTION I. CHARACTERISTIC WASTES D001-43 (CONTINUED)

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
	[ ] D009	[ ] WW [ ] Non-WW	1 2 3 4
	[ ] Low Mercury, less than 260 mg/kg Mercury	[ ] Non-WW only	2 3 4
	[ ] High Mercury Organic Subcategory	[ ] Non-WW only	2 3 4
	[ ] High Mercury Inorganic Subcategory	[ ] WW [ ] Non-WW	1 2 3 4 5 6
	[ ] D010 Selenium	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D011 Silver	[ ] WW [ ] Non-WW	2 3 4 5 6
	[ ] D012 Endrin	[ ] WW [ ] Non-WW	2 3 4 5 6
	[ ] D013 Lindane	[ ] WW [ ] Non-WW	2 3 4 5 6
	[ ] D014 Methoxychlor	[ ] WW [ ] Non-WW	2 3 4 5 6
	[ ] D015 Toxaphene	[ ] WW [ ] Non-WW	2 3 4 5 6
	[ ] D016 2,4-D	[ ] WW [ ] Non-WW	2 3 4 5 6
	[ ] D017 2,4,5-TP (Silvex)	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D018 Benzene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D019 Carbon tetrachloride	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D020 Chlordane	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D021 Chlorobenzene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D022 Chloroform	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D023 o-Cresol	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D024 m-Cresol	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D025 p-Cresol	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D026 Cresol	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D027 1,4-Dichlorobenzene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D028 1,2-Dichloroethane	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D029 1,1-Dichloroethylene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D030 2,4-Dinitrotoluene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D031 Heptachlor (and its epoxide)	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D032 Hexachlorobenzene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D033 Hexachlorobutadiene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D034 Hexachloroethane	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D035 Methyl ethyl ketone	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D036 Nitrobenzene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D037 Pentachlorophenol	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D038 Pyridine	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D039 Tetrachloroethylene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D040 Trichloroethylene	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D041 2,4,5-Trichlorophenol	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D042 2,4,6-Trichlorophenol	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] D043 Vinyl Chloride	[ ] WW [ ] Non-WW	1 2 3 4 6

SECTION II. SPENT SOLVENT WASTES F001 THROUGH F005

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
	[ ] F001 [X] F002 [X] F003 [ ] F004 [X] F005	[ ] WW [ ] Non-WW	3 4 5 6

	[ ] 1. ALL F001-F005		[ ] 12. Cyclohexanone		[ ] 25. Pyridine
1	[X] 2. Acetone		[ ] 13. o-Dichlorobenzene		[ ] 26. Tetrachloroethylene
	[ ] 3. Benzene		[ ] 14. 2-Ethoxyethanol (F005 only)	1	[X] 27. Toluene
	[ ] 4. n-Butyl alcohol		[ ] 15. Ethyl acetate		[ ] 28. 1,1,1-Trichloroethane
	[ ] 5. Carbon disulfide		[ ] 16. Ethyl benzene		[ ] 29. 1,1,2-Trichloroethane
	[ ] 6 Carbon tetrachloride		[ ] 17. Ethyl ether	1	[X] 30. Trichloroethylene
	[ ] 7. Chlorobenzene		[ ] 18. Isobutyl alcohol		[ ] 31. 1,1,2-Trichloro-1,2,2-trifluoroethane
	[ ] 8. o-Cresol		[ ] 19. Methanol		[ ] 32. Trichloromonofluoromethane
	[ ] 9. m-Cresol (difficult to distinguish from p-cresol)		[ ] 20. Methylene chloride		[ ] 33. Xylene - mixed isomers (sum of o-, m-, and p-xylene)
	[ ] 10. p-Cresol (difficult to distinguish from m-cresol)		[ ] 21. Methyl ethyl ketone		
	[ ] 11 Cresol - mixed isomers (sum of o-, m- and p-cresol)		[ ] 22 Methyl isobutyl ketone		
			[ ] 23. Nitrobenzene		
			[ ] 24. 2-Nitropropane (F005 only)		

DK2285049 SC PPW 2/26/2009

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	MOD007152903	1	(800) 483-3718	002332094 FLE

5. Generator's Name and Mailing Address
Northrop Grumman Guidance and Electronics Company
Northrop Grumman PO Box 1693 MS1401
Baltimore, MD 21203
Generator's Phone: (417) 829-5311 ATTN:Jeff Kuzemchak

Generator's Site Address (if different than mailing address)
4811 W Kearney
Springfield,MO 65803

6. Transporter 1 Company Name
Clean Harbors Environmental Services Inc
U.S. EPA ID Number
MAD039322250

7. Transporter 2 Company Name
Clean Harbors Environmental Services Inc
U.S. EPA ID Number
MAD039322250

8. Designated Facility Name and Site Address
Clean Harbors El Dorado LLC
309 American Circle
El Dorado, AR 71730
Facility's Phone: (870) 863-7173
U.S. EPA ID Number
ARD069748192

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (TOLUENE, TRICHLOROETHYLENE), 9, PG III	012	CF	06000	P	F002 F003 F005
X	2. ~~NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (TOLUENE, TRICHLOROETHYLENE), 9, PG III~~ DO NOT Ship 12/9/09					~~F002 F003 F005~~
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.CH339288 ERG#171 12xFLBN
~~2.CH339288 ERG#171~~

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: ON BEHALF OF Greg Miller Northrop Grumman Guidance & Electronics Co. Inc. Signature: [signature] Month 04 Day 09 Year 2009

INT'L
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only):

TRANSPORTER
17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: [illegible] Signature: [signature] Month 04 Day 09 Year 09
Transporter 2 Printed/Typed Name: James Matthew Noble Signature: [signature] Month 04 Day 13 Year 09

DESIGNATED FACILITY
18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number: U.S. EPA ID Number
18b. Alternate Facility (or Generator)
Facility's Phone: Month Day Year
18c. Signature of Alternate Facility (or Generator)

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H040 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: [illegible] Elliott Signature: [signature] Month 04 Day 14 Year 09

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: MOD007152903

22. Page 2 of 2

23. Manifest Tracking Number: 002332094 FLE

24. Generator's Name: Northrop Grumman Guidance and Electronics Co

25. Transporter 3 Company Name: Clean Harbors Environmental Services — U.S. EPA ID Number: MAD039322250

26. Transporter 4 Company Name: Clean Harbors Env. Services — U.S. EPA ID Number: MAD039322250

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name: Richard Durham — Signature: Richard Durham — Month/Day/Year: 04/16/09

34. Transporter 4 Acknowledgment of Receipt of Materials
Printed/Typed Name: J.L. Williamson (agent for CHES) — Signature: J.L. Williamson — Month/Day/Year: 4/16/09

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

CleanHarbors
ENVIRONMENTAL SERVICES®

Land Disposal Restriction Notification Form

Printed Date :Apr 06, 2009

MANIFEST INFORMATION

Generator : Northrop Grumman Guidance and Electronics C

Address: 4811 W Kearney
Springfield,MO 65803

EPA ID #: M O D 0 0 7 1 5 2 9 0 3

Manifest Tracking Info.

002332094FLE

Sales Order No: DK2285049

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH339288	NON-WASTEWATER	2 (This is subject to LDR.)

EPA Waste Code	EPA Waste SubCategory
F002 F003 F005	NONE

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
2.	1	CH339288	NON-WASTEWATER	2 (This is subject to LDR.)

EPA Waste Code	EPA Waste SubCategory
F002 F003 F005	NONE

Certification

Applies to Manifest Line Items: 1. 2.

Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268.

Waste analysis data, where available, is attached.

Signature : [signature]

Print Name Greg Mihael on behalf of Northrop Grumman Guidance & Electronics Co. Mo

Title :

Date : 04/09/2009

ATTACHMENT 5d Page 3 of 3

CH2141338 PPW0146x08 Form Approved. OMB No. 2050-0039

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number: MOD007152903	2. Page 1 of 2	3. Emergency Response Phone: (800) 483-3718	4. Manifest Tracking Number: 000577414 FLE

GENERATOR

5. Generator's Name and Mailing Address
Northrop Grumman Guidance and Electronics Company
Northrop Grumman PO Box 1893 MS1401
Baltimore, MD 21203
Generator's Phone: 417 829-5311 ATTN: Jeff Kuzmochak

Generator's Site Address (if different than mailing address)
4811 W Kearney
Springfield MO 65803

6. Transporter 1 Company Name: Clean Harbors Environmental Services Inc — U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name: Clean Harbors Environmental Services Inc — U.S. EPA ID Number: MAD039322250

8. Designated Facility Name and Site Address: Clean Harbors El Dorado LLC
309 American Circle
El Dorado, AR 71730
Facility's Phone: (870) 863-7173
U.S. EPA ID Number: ARD069748192

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (TOLUENE, TRICHLOROETHYLENE) 9, PG III	004	CF	3000	P	F002 F003 F005
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. CH539286 EP10M71
MO-H-1338
P627155

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Adam Saylor — Signature: [signature] — Month 12 Day 10 Year 08

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Charles [illegible] — Signature: [signature] — Month 12 Day 10 Year 08
Transporter 2 Printed/Typed Name: James Matthew Noble — Signature: [signature] — Month 12 Day 12 Year 08

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H040 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: [illegible] — Signature: [signature] — Month [illegible] Day [illegible] Year [illegible]

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

ATTACHMENT 5e Page 1 of 3

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: MDD007152903

22. Page 2 of 2

23. Manifest Tracking Number: JJ0577412 FLE

24. Generator's Name: Northrop Grumman

25. Transporter 3 Company Name: Trans Transport Inc — U.S. EPA ID Number: ORD981588711

26. Transporter 4 Company Name: Clean Harbors Env. Services — U.S. EPA ID Number: MAD039322220

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		

32. Special Handling Instructions and Additional Information

GENERATOR

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name: Clarence Johnson — Signature: [signature] — Month: 12 Day: 18 Year: 09

34. Transporter 4 Acknowledgment of Receipt of Materials
Printed/Typed Name: J.L. Williamson Agent for CHES — Signature: [signature] — Month: 12 Day: 18 Year: 09

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

DESIGNATED FACILITY TO GENERATOR

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

Land Disposal Restriction Notification Form

Print Date: 12/09/2008

CleanHarbors® ENVIRONMENTAL SERVICES, INC.

MANIFEST INFORMATION

Generator: Northrop Grumman Guidance and Electronics Company
Address: 4811 W Kearney
Springfield, MO 65803
EPA ID#: M O D 0 0 7 1 5 2 9 0 3

Manifest No
000577414FLE
Sales Order No: DK2141336

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
1	1	CH339288	NON- WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes
F002 F003 F005

EPA Waste Subcategory
NONE

Certification — **Applies to Manifest Line Items**

Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268. 1

Waste analysis data, where available, is attached

Signature: [signature] **Print Name:** Adam Smyle

Title: Env. Eng. **Date:** 12/10/08

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	MOD007152003
2. Page 1 of	5
3. Emergency Response Phone	(800) 483-3718
4. Manifest Tracking Number	001020598 FLE

5. Generator's Name and Mailing Address
Northrop Grumman
Northrop Grumman, PO Box 1693 MS1401
Baltimore, MD 21203
Generator's Phone: 417 [illegible] ATTN: Jeff Kuzemchak

Generator's Site Address (if different than mailing address)
3811 W Kearney, PO Box 1693 MS1401
Springfield, MO 65803

6. Transporter 1 Company Name: Clean Harbors Env Services Inc — U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name: [illegible] Expressway Group — U.S. EPA ID Number: UTA 0000[illegible]7708

8. Designated Facility Name and Site Address
Clean Harbors El Dorado LLC
309 American Circle
El Dorado, AR 71730
Facility's Phone: (870) 863-7173
U.S. EPA ID Number: ARD069748192

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
X	1. WASTE AEROSOLS,2.1,UN1950,NONE	001	DF	00002	P	D001	
X	2. RQ, WASTE FLAMMABLE LIQUIDS, N.O.S.,3,UN1993,PG II (D001)	001	DF	00100	P	D001	F003
X	3. WASTE POTASSIUM PERMANGANATE,5.1,UN1490,PG II	001	DF	00300	P	D001	
X	4. WASTE POTASSIUM PERMANGANATE,5.1,UN1490,PG II	001	DM	00350	P	D001	

14. Special Handling Instructions and Additional Information
1. LCGRD ERG#126 LP 1?8
2. LCGRD ERG#128 1?5
3. CH283381 ERG 140 1295
4. CH283381 ERG 140 1295

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Adam E S[illegible] Signature: [signature] Month 12 Day 13 Year 07

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: ______
Transporter signature (for exports only): ______ Date leaving U.S.: ______

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: [illegible] Signature: [signature] Month 12 Day 13 Year 07
Transporter 2 Printed/Typed Name: Tom [illegible] Signature: [signature] Month 12 Day 18 Year 07

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H040 2. H040 3. H040 4. H040

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: [illegible] Signature: [signature] Month 12 Day 28 Year 07

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: M O D 0 0 7 1 0 2 9 0 3
22. Page 2
23. Manifest Tracking Number: 0 0 1 0 2 0 5 0 8 F L E

24. Generator's Name: Northrop Grumman

25. Transporter 3 Company Name: [illegible handwriting] — U.S. EPA ID Number: [illegible]

26. Transporter ____ Company Name — U.S. EPA ID Number

GENERATOR

27a. HM	27b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
X	5. WASTE POTASSIUM CYANIDE SOLUTION,6.1,UN1413,PG I DOT-E-13192	0 0 1	D F	0 0 0 0 2	P	D003	P098	
X	6. WASTE SODIUM HYDROXIDE SOLUTION,8,UN1824,PG II	0 0 1	D F	0 0 4 0 0	P	D002		
X	7. WASTE SODIUM HYDROXIDE SOLUTION,8,UN1824,PG II	0 1 0	D F	0 4 0 0 0	P	D002		
X	8. WASTE NITRIC ACID OTHER THAN RED FUMING, WITH NOT MORE THAN 70 PERCENT NITRIC ACID,8,UN2031,PG II	0 0 1	D F	0 0 3 0 0	P	D002		
X	9. WASTE MERCURY CONTAINED IN MANUFACTURED ARTICLES,8,UN2809,PG III	0 0 1	D F	0 0 0 0 1	P	D009	U151	
X	10. RQ, WASTE CORROSIVE LIQUIDS, TOXIC, N.O.S. (SODIUM HYDROSULFIDE SOLUTION),8,(6.1),UN2922,PG II	~~0 0 1~~ 0 0 6	D F	0 0 9 5 0	P	D002	D003	
X	~~11. [illegible, struck through]~~ RE	~~0 0 1~~	~~D F~~	~~0 0 0 0 7~~	~~P~~	~~D002~~	~~D003~~	
X	12. WASTE CORROSIVE LIQUIDS, TOXIC, N.O.S. (SODIUM HYDROSULFIDE, SODIUM HYDROXIDE),8,(6.1),UN2922,PG II	0 0 1	D F	0 0 3 0 0	P	D002	D003	
X	~~13. WASTE CORROSIVE LIQUIDS, TOXIC, N.O.S. (SODIUM HYDROSULFIDE, SODIUM HYDROXIDE),8,(6.1),UN2922,PG II~~ RE	~~0 0 1~~	~~D F~~	~~[illegible]~~	~~P~~	~~D002~~	~~D003~~	
X	14. BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID,8,UN3028,PG III	0 0 1	D F	0 0 0 0 7	P			

32. Special Handling Instructions and Additional Information
5. [illegible] ERG 157 LP 1x5
6. CH274156 ERG 154 1x55
7. CH280441 ERG 154 10x55
8. CH275956 ERG 157 1x55
9. LGHG1 ERG 172 LP 1x5
10. CH228695 ERG 154 ~~2x55~~ 2x55
~~11. CH[illegible]~~ 7 TOTE TANK
12. CH287858 ERG 154 1x55
13. CH287858 ERG 154 1 TOTE TANK
14. LLF ERG 154 LP 1x5

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name Signature Month Day Year 12 19 09

34. Transporter ____ Acknowledgment of Receipt of Materials
Printed/Typed Name Signature Month Day Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: M O D 0 0 7 4 5 2 9 0 3

22. Page: 2

23. Manifest Tracking Number: 0 0 1 0 2 0 5 9 8 F L E

24. Generator's Name: Northrop Grumman

25. Transporter ____ Company Name — U.S. EPA ID Number

26. Transporter ____ Company Name — U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
X	15. WASTE CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.,8,UN3264,PG II	0 0 1	D F	0 0 0 5 0	P	D002		
X	16. CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.,(5-CHLORO-2-METHYL-2,3-DIHYDROISOTHIAZOL-3-ONE),8 ... II	0 0 1	D F	0 0 0 4 0	P			
X	17. WASTE CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.,(FORMIC ACID, HYDROXYACETIC ACID),8,UN3265,PG II	0 0 3	D F	0 1 0 0 0	P	D002		
X	18. WASTE CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.,8,UN3266,PG II	0 0 1	D F	0 0 0 4 0	P	D002		
X	19. HAZARDOUS WASTE, SOLID, N.O.S.,(LEAD),9,NA3077,PG III	0 0 3	D F	0 0 6 0 0	P	D008		
X	20. HAZARDOUS WASTE, SOLID, N.O.S.,(LEAD),9,NA3077,PG III	0 0 1	D M	0 0 4 0 0	P	D008		
X	21. HAZARDOUS WASTE, SOLID, N.O.S.,(LEAD),9,NA3077,PG III	0 0 2	D M	0 0 8 0 0	P	D008		
X	22. HAZARDOUS WASTE, SOLID, N.O.S.,(METHYL ETHYL KETONE, TRICHLOROETHYLENE),9,NA3077,PG III	0 0 2	D F	0 0 0 0 0	P	F002	F005	[illegible]
X	23. HAZARDOUS WASTE, LIQUID, N.O.S.,(LEAD),9,NA3082,PG III	0 0 2	D F	0 0 3 0 0	P	D008		
X	24. HAZARDOUS WASTE, LIQUID, N.O.S.,(LEAD),9,NA3082,PG III	0 0 3	D F	0 0 0 0 0	P	D008		

32. Special Handling Instructions and Additional Information

15. LCCRA ERG 154 LP 1x30
16. CH255653 ERG 153 1x30
17. CH278721 ERG 153 3x55
18. LCCRB ERG 154 LP 1x30
19. CH212055 ERG 171 3x30
20. CH262532 ERG 171 1x55
21. CH250069 ERG 171 2x55
22. CH280951 ERG 171 2xFLEX BIN
23. CH264107 ERG 171 1x55,1x30
24. CH264... 3x55

33. Transporter ____ Acknowledgment of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

34. Transporter ____ Acknowledgment of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

GENERATOR — TRANSPORTER — DESIGNATED FACILITY

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) CH1709663 [illegible] Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page	23. Manifest Tracking Number
	M O D 0 0 7 1 5 2 9 0 3	05	001020598 FLE

24. Generator's Name
Northrop Grumman

25. Transporter ______ Company Name | U.S. EPA ID Number

26. Transporter ______ Company Name | U.S. EPA ID Number

GENERATOR

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
X	25. HAZARDOUS WASTE, LIQUID, N.O.S., (LEAD), 9, NA3082, PG III	0 0 1	D M	0 0 3 0 0	P	D008		
X	26. HAZARDOUS WASTE, LIQUID, N.O.S., (LEAD, ARSENIC), 9, NA3082, PG III	0 0 6	D F	0 2 4 0 0	P	D004	D008	D010
	27. NON HAZARDOUS, NON D.O.T. REGULATED LIQUID, N/A, NONE	0 0 1	D F	0 0 3 9 0	P			
	28. NON HAZARDOUS, NON D.O.T. REGULATED LIQUID, N/A, NONE	0 0 1	D F	0 0 3 0 2	P			
	29. NON HAZARDOUS, NON D.O.T. REGULATED LIQUID, N/A, NONE	0 0 2	D M	0 0 6 0 0	P			
	30. NON HAZARDOUS, NON D.O.T. REGULATED LIQUID, N/A, NONE	0 0 1	D M	0 0 2 0 0	P			
	31. NON D.O.T. REGULATED, (UNIVERSAL WASTE LAMPS), N/A, NONE	0 0 3	C F	0 0 0 9	P			
	32. NON D.O.T. REGULATED, NONE, N/A	0 0 1	D M	0 0 4 5 0	P			
	33. NON D.O.T. REGULATED, NONE, N/A	0 0 1	D F	0 0 2 5 0	P			
	34. NON D.O.T. REGULATED, NONE, N/A	0 2 6	D F	0 0 7 9	P			

32. Special Handling Instructions and Additional Information
25. CH[illegible] ERG 171 1x55 30. CH[illegible] 1x55
26. CH[illegible] ERG 171 6x55 31. CH273651 3x4FB BOX
27. CH273627 1x55 32. CH276403 1x55
28. CH274156 1x55 33. CH[illegible] 1x30
29. CH274156 2x55 34. CH28377[illegible] 26x55

TRANSPORTER

33. Transporter ______ Acknowledgment of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

34. Transporter ______ Acknowledgment of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**
Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page	23. Manifest Tracking Number
	MOD000715290 3	of 5	001020508 FLE

24. Generator's Name
Northrop Grumman

25. Transporter ______ Company Name | U.S. EPA ID Number

26. Transporter ______ Company Name | U.S. EPA ID Number

GENERATOR

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes
	35. NON D.O.T. REGULATED,NONE,N/A	001	DM	00031	P	
	35. NON DOT REGULATED,(UNIVERSAL WASTE LAMPS),NONE,NONE	001	DF	00040	P	

32. Special Handling Instructions and Additional Information
35. [illegible] 4130

TRANSPORTER

33. Transporter ______ Acknowledgment of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

34. Transporter ______ Acknowledgment of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Land Disposal Restriction Notification Form

Date: 12/13/2007

MANIFEST INFORMATION

Generator: Northrop Grumman

Address: 4241 W Kearney

Springfield, MO 65803

EPA ID#: M O D 0 0 7 1 5 2 9 3 3

Manifest No

0010.20536 FLE

Sales Order No: CK1709663

Manifest Document No: 90091

LINE ITEM INFORMATION

Line Item:	Page No.	Profile No:	Treatability Group:	LDR Disposal Category:
1	1	LCCRQ	NON-WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes: D001 — EPA Waste Subcategory: Ignitables, except High TOC Liquids

Line Item:	Page No.	Profile No:	Treatability Group:	LDR Disposal Category:
2	1	LCCRD	NON-WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes: D001 — EPA Waste Subcategory: High TOC Ignitable Liquids

EPA Waste Codes: F003 — EPA Waste Subcategory: Carbon Disulfide, Cyclohexanone, and/or methanol mixtures only

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
3	1	CH283381	WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: — EPA Waste Subcategory: Ignitables, except High TOC Liquids

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
4	1	CH283381	WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: D001 — EPA Waste Subcategory: Ignitables, except High TOC Liquids

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
5	2	LCCR!	NON-WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: D003 — EPA Waste Subcategory: Reactive Cyanides

EPA Waste Codes: P099 — EPA Waste Subcategory: NONE

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
6	2	CH274136	WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes: D002 — EPA Waste Subcategory: Corrosive Characteristic

Line Item	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
7	2	CH286441	NON-WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: — EPA Waste Subcategory: Corrosive Characteristic

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
9	2	LCHO1	NON-WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: D003 — EPA Waste Subcategory: High Reactive Cyanide

D151

Land Disposal Restriction Notification Form

Date: 12 / 13 / 2007

MANIFEST INFORMATION

Generator: Northrop Grumman

Address: 4811 W Kearney

Springfield, MO 65803

EPA ID#: M O D 0 0 7 1 5 2 9 0 8

Manifest No

001020593 FLE

Sales Order No: CK1709663

Manifest Document No: 00001

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
10	2	CH280986	WASTEWATER	2 : This is subject to LDR

EPA Waste Codes	EPA Waste Subcategory
D002	Corrosive Characteristic
D003	Reactive Sulfides

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
11	2	CH280986	WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes	EPA Waste Subcategory
D002	Corrosive Characteristic
D003	Reactive Sulfides

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
12	2	CH287866	WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes	EPA Waste Subcategory
D002	Corrosive Characteristic
D003	Reactive Sulfides

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
13	2	CH287866	WASTEWATER	2 : This is subject to LDR

EPA Waste Codes	EPA Waste Subcategory
D002	Corrosive Characteristic
D003	Reactive Sulfides

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
15	3	LDCRA	NON-WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes	EPA Waste Subcategory
D002	Corrosive Characteristic

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
17	3	CH278721	NON-WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes	EPA Waste Subcategory
D002	Corrosive Characteristic

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
18	3	LDCRB	NON-WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes	EPA Waste Subcategory
D002	Corrosive Characteristic

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
19	3	CH282456	NON-WASTEWATER	2 : This is subject to LDR

EPA Waste Codes	EPA Waste Subcategory
D002	

Land Disposal Restriction Notification Form

Date: 12 / 13 / 2007

MANIFEST INFORMATION

Generator: Northrop Grumman
Address: 4811 W Kearney
Springfield, MO 65803
EPA ID#: M O D 0 0 7 1 6 2 9 0 3

Manifest No
001020598 FLE
Sales Order No: CK1709863
Manifest Document No: 00001

Line Item:	Page No:	Profile No.	Treatability Group:	LDR Disposal Category:
20	3	CH062955	NON-WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes: D008
EPA Waste Subcategory: Toxicity Characteristic for Lead

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
21	3	CH062959	NON-WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: D008
EPA Waste Subcategory: Toxicity Characteristic for Lead

Line Item:	Page No.	Profile No:	Treatability Group:	LDR Disposal Category:
22	3	CH263991	NON-WASTEWATER	4 : Meets LDR Standards

EPA Waste Codes: F002 F005
EPA Waste Subcategory: NONE

LDR Chemical Data

Chemical	Underlying Hazardous Constituents	Constituents of Concern	Contaminants Subject to Treatment
METHYL ETHYL KETONE	N	Y	N
TRICHLOROETHYLENE	N	Y	N

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
23	3	CH264027	NON-WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: D008
EPA Waste Subcategory: Toxicity Characteristic for Lead

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
24	3	CH264030	NON-WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: D008
EPA Waste Subcategory: Toxicity Characteristic for Lead

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
25	4	CH264033	NON-WASTEWATER	2 : This is subject to LDR

EPA Waste Codes: D008
EPA Waste Subcategory: Toxicity Characteristic for Lead

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
	4	CH266828	NON-WASTEWATER	2 : This is subject to LDR.

EPA Waste Codes	EPA Waste Subcategory
D004	Toxicity Characteristic for Arsenic
D008	Toxicity Characteristic for Lead
D010	Toxicity Characteristic for Selenium

Land Disposal Restriction Notification Form

Date 12/13/2007

MANIFEST INFORMATION

Generator: Northrop Grumman

Address: 1611 W Kearney
Springfield, MO 65803

EPA ID#: M O D 0 0 7 1 6 2 9 0 3

Manifest No

001020588 FLE

Sales Order No: CK1709663

Manifest Document No: 00001

Certification	Applies to Manifest Line Items
Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268	1 2 3 4 5 6 7 9 10 11 12 13 15 17 18 19 20 21 23 24 25 26
This waste is not restricted as specified in 40 CFR 268 Subpart D.	16 27 28 29 30 31 32 33 34 35 36
I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.	22

Land Disposal Restriction Notification Form

Date. 12 / 13 / 2007

MANIFEST INFORMATION

Generator: Northrop Grumman Address: 4811 W Kearney Springfield, MO 65803 EPA ID#: M O D 0 0 7 1 5 2 9 0 3	**Manifest No** 001020598 FLE **Sales Order No:** CK1709883 **Manifest Document No:** 00001

Waste analysis data, where available, is attached

Signature: [signature] Print Name: Adam Sykes

Title: Env. Eng. Date: 12/13/07

Contained-out determination
Kifer, Evan
to:
Dedriel Newsome
12/06/2010 01:40 PM
Show Details

1 Attachment

Contained-Out Determination Approval Document with Signature 3-04-10.pdf

Let me know if you need anything else!!

Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

"Contained-Out" Determinations for the Former Litton Systems, Inc. Site
4811 West Kearney Street, Springfield, Missouri

March 1, 2010

I. INTRODUCTION

Northrop Grumman Systems Corporation (Northrop Grumman), owner of the former Litton Systems, Inc. site (Litton) in Springfield, Missouri, has requested that the Missouri Department of Natural Resources (MDNR) make contained-out determinations for trichloroethylene (TCE), methyl ethyl ketone, methylene chloride and 1,1,1 trichloroethane. Contained-out determinations would apply to environmental media generated at the site in conjunction with site remediation activities.

MDNR is currently overseeing work being conducted at the former Litton site by the site owner, Northrop Grumman. Activities at the site are focused on the investigation, evaluation, and implementation of remediation for soil and groundwater contamination that exists within identified Areas of Concern (AOCs).

Within site soils, three subcategories have been identified. These are: 1) soils contaminated with metals, primarily copper; 2) soils contaminated with volatile organic compounds (VOCs), primarily trichloroethylene (TCE); and 3) soils contaminated with both metals and VOCs. The following list identifies the various site AOCs and the associated contaminants found there. These areas are identified on the attached figure.

1.) Area Near SB-19 (Pilot Study Area) – VOCs
2.) Former New Acid Pit (NAP) – VOCs and Metals
3.) Former Original Acid Pit (OAP)(including the OAP East and West and Sludge Pit East and West) – VOCs and Metals
4.) Former Percolation Terrace – Metals
5.) Former A/B Lagoon – Metals
6.) Building Footprint Subfloor – VOCs and Metals
7.) Former Sanitary Lagoon – Metals

The technology selected to remediate site VOC contamination is Electrical Resistive Heating (ERH), which essentially heats the soil and groundwater column to the bedrock interface within a specific AOC to volatilize the VOCs. The subsequent vapors and moisture are extracted, using a single phase or dual phase extraction system, and treated prior to discharge. The remediation of soils contaminated with VOCs in the Pilot Study Area is complete and the remediation of soils in the NAP with both metals and VOCs is near completion. The technology selected for AOCs having both metals and VOCs contamination is treatment using ERH, followed by the installation of an earthen cover or paved barrier. ERH is extremely effective at treating soil contaminated with VOCs and a

target concentration of 0.4 mg/kg of TCE in soil has been approved as the remediation goal. This concentration is lower than the site-specific calculated risk level of 4.6 mg/kg based on the *Targeted Risk Assessment of On-Site Soils, November 2006*, prepared by Stantec Consulting, formerly SECOR International.

Some of the remediation and general construction activities being conducted at the site may generate carbon from soil vapor treatment, sediment from water treatment or well components, soil borings, and possibly excavated soil for offsite disposal. This has raised the question of whether any of the excavated soil or solid environmental media generated onsite would be subject to Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste requirements before and after treatment. Site investigations and review of prior disposal practices indicate that some site soils within certain AOCs were contaminated by listed hazardous wastes. Consequently, some soil and solid environmental media may be hazardous waste, if excavated from these AOCs, unless the state makes a site-specific risk-based determination that the soil in these AOCs does not contain hazardous waste. Such a determination is generally referred to as a contained-out determination. Without this determination, possible future development of the site could be limited due to the costs of handling, treating, and disposing of such materials from the site.

Relevant U.S. Environmental Protection Agency (EPA) policies and guidance are summarized in a memo titled, *Management of Remediation Waste Under RCRA*, from Timothy Fields, Jr. and Steven A. Herman, EPA 530-F-98-026, (October 14, 1998). We have made extensive use of the discussion of the "contained-in" policy found in the preamble to the LDR Phase IV Final Rule, 63 Fed. Reg. 28556 (May 26, 1998).

II. BACKGROUND

A. Characteristic and Listed RCRA Hazardous Waste Identification

Some of the site soils and solid environmental media may fail the TCLP test and exhibit a RCRA toxicity characteristic of hazardous waste. Consequently, that material, if removed and managed outside of an AOC, would be subject to the Missouri Hazardous Waste Management Law and its implementing regulations. However, it is anticipated that a significant amount of the soil and solid environmental media generated at the site will not fail TCLP and, consequently, will not be considered characteristic hazardous waste. Nonetheless, some soil and solid environmental media that pass the TCLP test may still require handling as hazardous waste, if they contain low detections of listed hazardous waste, even if the removed soils were within an AOC treated by ERH.

Listed hazardous waste is identified by the source of the hazardous waste, rather than by the concentration of hazardous constituents. Analytical testing alone, without information pertaining to the waste's source, will not produce information that will conclusively indicate whether a waste is a listed hazardous waste. Depending on its source, a chemical found in a soil sample even at low levels may be an F-listed hazardous waste from a non-specific source (40 C.F.R. § 261.31), a K-listed hazardous waste from a

specific source (40 C.F.R. § 261.32), or a P-listed or U-listed hazardous waste that is a discarded commercial product, off-specification species, container residue, or spill residue thereof (40 C.F.R. § 261.33).

B. Determination of When Contamination is Caused by Listed Hazardous Waste

In many remediation situations, very little is known about the source of the hazardous substances at a site. The EPA recommends that the lead agency use available site information, such as storage records and manifests in an effort to ascertain the sources of wastes but "when this documentation is not available or inconclusive, the lead agency may assume that the wastes (or contaminants) are not listed RCRA hazardous wastes." See *Management of Remediation Waste Under RCRA*, and discussion in preambles to the then proposed regulations, 53 Fed. Reg. 5144 (December 21, 1988), 55 Fed. Reg. 8758 (March 13, 1990), and 61 Fed. Reg. 18805 (April 29, 1996). The EPA approach is that a hazardous substance found in a site sample is not a specific listed hazardous waste when generated unless there is evidence indicating that the source of the hazardous substance itself is a listed hazardous waste. Since there is often very little or no evidence regarding the source of hazardous substances found in soil at a site, the hazardous substances are generally not considered to be listed hazardous wastes.

At this site, much of what is known about the historical handling and management of waste at the site was obtained from several former site employees. The information obtained from these former employees suggests that F-listed hazardous waste may have been disposed of in discreet areas at the site. Extensive sampling conducted at the site thus far has indicated the presence of trichloroethylene, 1,1,1 trichloroethane, methylene chloride, and methyl ethyl ketone. The information from the former employees and the sampling have suggested the presence of these VOCs as an F-listed hazardous waste at three AOCs located at the site:

- Former New Acid Pit (NAP),
- Former Old Acid Pit (OAP); and
- a portion of the Building Footprint Subfloor beneath the former Electroless plating area.

See Figure. The source of contamination at the Pilot Study Area is unknown.

C. The "Contained-in" Policy

EPA policy decisions have established that contaminated environmental media, such as soil and groundwater, are not themselves hazardous wastes because the media are not inherently waste-like in nature and, therefore, are not solid wastes. Rather, the EPA's interpretation has been that such media, if excavated and managed outside an AOC, must be managed as hazardous wastes if they exhibit a characteristic of hazardous waste or contain listed hazardous waste. Conversely, if the soil does not contain hazardous waste, then the soil does not need to be managed as hazardous waste as discussed in 63 Fed. Reg. 28521 (May 26, 1998):

In practice, the EPA has applied the "contained-in" principle to refer to a process where a site-specific determination is made that concentrations of hazardous constituents in any given volume of environmental media are low enough to determine that the media does not "contain" hazardous waste. Typically, these so called "contained-in" determinations do not mean that no hazardous constituents are present in environmental media but simply that the concentrations of hazardous constituents present do not warrant management of the media as hazardous waste. For contaminated soil, the result of "contained-in" determinations is that soil no longer "contains" a hazardous waste.

This is sometimes also called a "contained-out" or "no longer contained-in" determination.

In the October 14, 1998, EPA memo, *Management of Remediation Waste Under RCRA*, cited above, "contained-in" determinations are described as follows:

In the case of media that are contaminated by listed hazardous waste, current EPA guidance recommends that "contained-in" determinations be made based on direct exposure using a reasonable maximum exposure scenario and that conservative, health-based, standards be used to develop the site-specific health-based levels of hazardous constituents below which contaminated environmental media would be considered to no longer contain hazardous waste. Since this determination involves development of site-specific health-based levels, the approval of the EPA or an authorized state is required.

This memo also provides a mechanism to eliminate managing media as a listed hazardous waste if:

> (1) it no longer exhibits a characteristic of hazardous waste; and
> (2) concentrations of hazardous constituents from listed hazardous wastes are below health-based levels.

III. CONTAINED-OUT DETERMINATIONS FOR LISTED HAZARDOUS WASTES AT THE SITE

The contained-out determinations for listed hazardous wastes proposed herein are intended to apply to the soil and solid environmental media generated by current and future site activities within the NAP, OAP, and Building Footprint Subfloor AOCs at the former Litton site. These are the only areas of the site where there is evidence indicating that the source of the soil impacts may have been listed hazardous wastes. Therefore, pursuant to the EPA guidance referenced above, a contained-out determination is not needed for other areas of the site where there may be soil impacts since such impacts would not contain listed hazardous wastes.

In making a determination of appropriate contained-out health-based levels for excavated soil and solid environmental media generated on-site, it is appropriate to consider any possible future use of the on-site area, as well as the potential use of any offsite disposal site for soil or solid environmental media removed from the site. Although the future use of any offsite disposal facility such as a subtitle D or municipal landfill may reasonably

be expected to continue to be a landfill, the contained-out levels being proposed in this approval document for excavated soils and solid environmental media generated onsite are largely based on EPA Region 6 Regional Screening Levels (RSLs) for residential soil last updated in 2008 (which are the same as Region 3 & 9 RSLs). The conservative approach of utilizing residential screening levels considers potential future use of the onsite area as well as offsite alternatives other than a landfill.

Sampling during the investigation of the site has identified the presence of two potentially listed hazardous wastes that also could be potential toxicity characteristic hazardous wastes: trichloroethylene and methyl ethyl ketone. In addition to the potential listed hazardous waste designation (F002 and F005) for each of these compounds, trichloroethylene may be a toxicity characteristic hazardous waste (D040), if present at concentrations above the regulatory level of 0.5 mg/L. The compound methyl ethyl ketone may be a toxicity characteristic hazardous waste (D035), if present at concentrations above the regulatory level of 200 mg/L. If the results of TCLP sampling exceed the toxicity characteristic levels for these or any other contaminant or exhibit any other hazardous characteristic, soil or solid environmental media will be managed as a characteristic hazardous waste.

Determination 1

The MDNR is making a determination regarding trichloroethylene, such that any soil or solid environmental media removed from the NAP, OAP, or the Building Footprint Subfloor Area that contains trichloroethylene at concentrations below 2.8 mg/kg is no longer deemed to be an F002 hazardous waste. Only trichloroethylene present in soils in these areas at concentrations greater than 2.8 mg/kg will be deemed an F002 hazardous waste, if removed and managed outside these areas. This contained-out level of 2.8 mg/kg is the EPA Region 6 RSL for residential soil.

Determination 2

The MDNR is making a determination regarding methyl ethyl ketone, such that any soil or solid environmental media removed from the NAP, OAP, or the Building Footprint Subfloor Area that contains methyl ethyl ketone at concentrations below 28,000 mg/kg is no longer deemed to be an F005 hazardous waste. Only methyl ethyl ketone present in soils in these areas at concentrations greater than 28,000 mg/kg will be deemed an F005 hazardous waste, if removed and managed outside these areas. This contained-out level of 28,000 mg/kg is the EPA Region 6 RSL for residential soil.

Determination 3

The MDNR is making a determination regarding methylene chloride, such that any soil or solid environmental media removed from the NAP, OAP, or the Building Footprint Subfloor Area that contains methylene chloride at concentrations below 11 mg/kg is no longer deemed an F002 hazardous waste. Only methylene chloride present in soils in these areas at concentrations greater than 11 mg/kg will be deemed an F002 hazardous waste, if removed and managed outside these areas. This contained-out level of 11 mg/kg is the EPA Region 6 RSL for residential soil.

Determination 4

The MDNR is making a determination regarding 1,1,1 trichloroethane, such that any soil or solid environmental media removed from the NAP, OAP, or the Building Footprint Subfloor Area that contains 1,1,1 trichloroethane at concentrations below 680 mg/kg is no longer deemed an F002 hazardous waste. Only 1,1,1 trichloroethane present in soils in these areas at concentrations greater than 680 mg/kg will be deemed an F002 hazardous waste, if removed and managed outside these areas. This contained-out level of 680 mg/kg is the saturation concentration for 1,1,1 trichloroethane. Levels above this concentration raise concerns about physical hazards such as flammability and/or explosivity due to the presence of free phase product. A level of 680 mg/kg is significantly below the EPA Region 6 RSL for residential soil of 9,000 mg/kg, but was recommended by the Missouri Department of Health and Senior Services.

IV. CONCLUSION

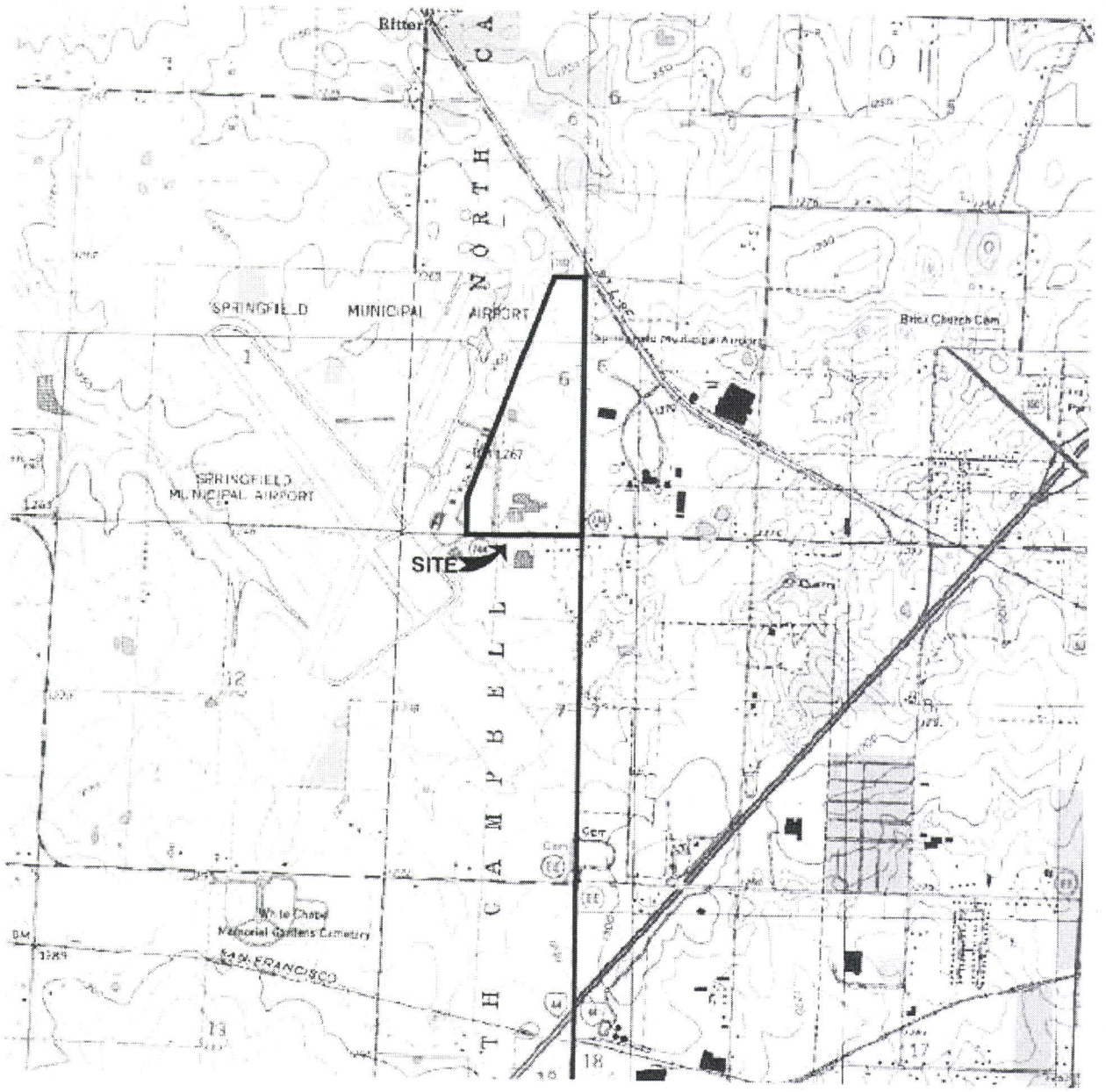
The Superfund Section, with input from the Compliance and Enforcement Section of the Hazardous Waste Program, the Department of Health and Senior Services, and the Missouri Attorney General's Office, recommends and requests the HWP approve of the above determinations such that soil and solid environmental media generated by current and future site activities in the NAP, OAP and Building Footprint Subfloor Area at concentrations below the contained-out levels specified above are not deemed to contain the listed hazardous wastes of trichloroethylene, 1,1,1 trichloroethane, methylene chloride, and methyl ethyl ketone and, thus, do not need to be managed as listed hazardous wastes. If the soil and solid environmental media that meet the contained out criteria exhibit any hazardous characteristic, they will be managed as characteristic hazardous wastes.

APPROVED:

Robert Geller

Robert Geller, Director
Hazardous Waste Program

March 4, 2010
Date



REFERENCE: USGS 7.5 MINUTE QUADRANGLE; BROOKLINE MO 1975

SECOR 400 BRUNS LANE SPRINGFIELD, ILLINOIS 62702 PHONE: (217) 698-7247 FAX: (217) 698-8536	FOR: LITTON SYSTEMS INC. 4811 WEST KEARNEY SPRINGFIELD, MO 65803	SITE LOCATION MAP			FIGURE: 1.1
	JOB NUMBER: 61OT.07007.00	DRAWN BY: GLH	CHECKED BY:	APPROVED BY:	DATE: 10/08/07

FILEPATH:Q:\CADD-61\LITTON SYSTEMS INC\07007 SITE LOCAL.dwg|jhinkle|Oct 09, 2007 at 8:03|Layout: SITE LOCATION MAP

HANDLER INFORMATION REPORT

September 29, 2010

Procedures for Inspectors performing Site Visits

If the facility wants to make a change, they must complete a Notification of Regulated Waste Activity form # MO780-1164, and send it to the Department of Natural Resources, Waste Management Program, PO Box 176, Jefferson City, MO 65102. The form can be found at http://www.dnr.mo.gov/forms/780-1164.pdf

If during the course of the site visit, the inspector/investigator becomes aware of any changes which should be made to the information printed on this form, please make the corrections and return the form to: Beth Koesterer, AWMD/WEMM.

EPA RCRA ID Number: MOD007152903

Name of Company/Site: NORTHROP GRUMMAN GUIDANCE AND ELECTRONICS COMPANY INC
Location of Site: 4811 W KEARNEY ST
SPRINGFIELD, MO 65803
GREENE County

Land Type: Private

NAICS: 56291 - REMEDIATION SERVICES

Mailing Address: P O BOX 1693
MAIL STOP 1401
BALTIMORE, MD 21203

Site Contact: ADAM E SAYLOR
Job Title: SR ENVIRONMENTAL ENGINEER
Address: P O BOX 1693
MAIL STOP 1401
BALTIMORE, MD 21203
Email: ADAM.SAYLOR@NGC.COM
Phone Number: (410)993-7080

Current Owner of Site: NORTHROP GRUMMAN GUIDANCE & ELECTRONICS
Owner Type: Private

Current Operator of Site: NORTHROP GRUMMAN GUIDANCE & ELECTRONICS
Phone Number: (410)993-7080
Operator Type: Private

TYPE(S) OF REGULATED ACTIVITY: Federal Large Quantity Generator

Hazardous Wastes Handled: F002 F003 F005

I 03/13/92 1 1st N 09/27/99 N 05/04/09 1

Certified by Notification on 02/22/10 by
JAY TOLLE 02/04/10
MANAGER, ENVIRONMENTAL PROGRAMS & REMEDIATION

Date of Site Visit: 11/18/10

Name of Inspector (Please print): Dedriel Newsome

(Check one): ☒ EPA R7 ENSV ☐ EPA R7 Contractor ☐ NOWCC/SEE Investigator

Signature of Inspector: Dedriel Newsome

Appendix 1-3

Facility: Northrop Grumman Date: 11/18/10 Arrival time: 9:30AM

DRIVE-BY

1. Drive-by conducted from public right-of-way? ☑Yes ☐No where possible

2. Determine the direction "North" with respect to the facility and provide a brief sketch of the layout and orientation (as can be viewed from the public right-of-way):

3. Obvious concerns visible from public right-of-way (photos)? ☐Yes ☑No

- Containers	- Tanks	- Processing Equipment	– Loading Areas
- Unloading Areas	- Security Devices	- Open Drums	– Stressed Vegetation
-Unusual Staining	- Unusual Odors	- Obvious Discharges	– Improper Disposal
- Safety Concerns	- Other Concerns		

Appendix 1-4 SITE ENTRY AND INBRIEFING see report for discussion of arrangements made with Adam Saylor.

1. ☑Used main entrance ☑Entered during normal operating hours ☐Excessive delays (>15 minutes - denial of access?) - ☑No

2. Facility Representative(s): Greg Michael Title: Sr. Engineer (since '07)
Mark Densmore Title: Sr Geologist (worked on-site since 2001)
_____ Title: _____

3. Does representative have intimate knowledge of all waste management practices? ☑Yes ☐No

How long in position? _____

4. Introduction:
- ☑Presented credentials
- ☑Explained responsibility to provide accurate information and provided copies of Section 1001 and 1002 U.S.C. to facility
- ☑Verified presence at correct facility (checked address/I.D. #)
- ☑Explained authority to conduct inspection (Section 3007 of RCRA)
- ☑Explained the purpose, scope, and order of the inspection
- ☐Completed Multimedia screening checklist
- ☑Explained documentation process - worksheets, checklists, photos, notes, statements, etc
- ☐Provided SBRFA } closed facility going thru remediation
- ☐Obtained GPS reading
- ☑Explained facility's right to claim CBI

5. Was full access granted? ☑Yes ☐ By facility representative or Other (name): _____

☐No - Access denied. Name of person denying access: _____

Time of denial: _____

Reason for denial, or limitations placed on access:

Contacted Adam Saylor on 11/16/10 and informed him of inspection since no one on-site. We made arrangements to meet on 11/18/10 at 9:30am.

Inspector Worksheet

Inspector: DEDRIEL NEWSOME

JFH 12/7/10

Facility Name: Northrop Grumman Guidance and Electronics Co. **Media:** RCRA **Federal Facility:** ☐ Yes

Address: 4811 West Kearney Street

City: Springfield **State:** MO **ZIP:** 65803 **County:** Greene

Facility Activity:	Inspection Type:	Selection Criteria - 1:	Selection Criteria - 2:
	CEI	LQG (KS,MO,NE)	

ID Number:	Activity #:	NAICS/SIC Code:	Compliance Officer:
MOD007152903			BETH KOESTER

Quarter Requested:	Quarter:	Fiscal Year:	Last Inspection:	Planned Inspection:
Any Quarter		2011	12/06/2005	

Major or Minor:	ACS Code:	Forward Copy of MMSC to:	Comments:
	RCRA02		

FF Commitment Comments:

Federal Facility Program Commitment:

Reason For Inspection:

**** All information below is required and must be completed by the Inspector ****

Actual Insepction	Report Transmittal	Report Completion
11/18/10		

Potential EJ	Preliminary SNC Findings	NOV\NOPF Issued	Security Handout Provided	SBREFA
☐ Yes ☑ No ☐ N\A	☐ Yes ☑ No ☐ N\A	☐ Yes ☑ No ☐ N\A	☐ Yes ☐ No ☑ N\A	☐ Yes ☐ No ☑ N\A

MM Type	MM Level	MM Participating Program *

* A=CAA, W=CWA, R=RCRA, E/T=EPCRA/TSCA, U=UST, C=CFC, U-I=UIC, Wet, PWS, All

MM Screening Complete? ☒ Yes ☐ No ☐ N\A

MM Screening Forwarded? ☐ Yes ☒ No

If Yes, who? → ☐ ALL ☐ CAA ☐ E/T ☐ EMS ☐ CFC ☐ RCRA ☐ ISO 14001 ☐ CWA ☐ UST ☐ UIC ☐ PWS ☐ EJ ☐ SPCC ☐ Wetlands

Inspection Findings and Comments: (briefly list regulatory concerns or other compliance issues)

This facility has closed + is in the process of being investigated + remediated under the oversight of MDNR Superfund.

Target Quality (Good / Bad - Why?)

Closed facility

12/8
12/15/10

**** For Contractor Inspections Only ****

Contracting Officer:	Date of First Draft	Date of Final Report

MEMORANDUM

SUBJECT: RCRA Compliance Evaluation Inspection at
Northrop Grumman Guidance and Electronics Company, Inc., Springfield, MO
MOD007152903

FROM: Dedriel Newsome, Environmental Engineer
ENSV/EFCB

THRU: John Houlihan, Chief
ENSV/EFCB

TO: Donald Toensing, Chief
AWMD/ RESP

At the request of Air & Waste Management Division (AWMD), I performed a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) at the Northrop Grumman Guidance and Electronics Company, Inc. in Springfield, MO (Northrop-Springfield). Northrop-Springfield is located at 4811 W. Kearney St, Springfield, MO 65803. The mailing address is P.O. Box 1693, Mail Stop 1401, Baltimore, MD 21203. I conducted the inspection on 11/18/2010 under the authority of RCRA Section 3007(a), as amended. During the inspection, I collected the information and data necessary to determine compliance with the applicable regulatory and statutory requirements. This memo and attachments present the results of the inspection. I conducted the inspection as a Level B Multi-Media Inspection and the Multi-Media Screening Checklist is included as attachment 1. Based on the information obtained during the course of the inspection, I inspected the facility as a conditionally exempt small quantity generator (CESQG) of hazardous waste. According to the EPA RCRAInfo database, this facility was last inspected by the EPA on 12/6/2005. Five violations were observed for management of satellite accumulation containers, job descriptions and incomplete manifests during the 2005 CEI.

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Baltimore, MD and that they had no company personnel located in Springfield, MO. Mr. Saylor and I made arrangements for me to meet with their contractor, Stantec Consulting (Stantec), Springfield, IL, at the trailer office located on-site on 11/18/2010 at 9:30A.M.

On 11/18/2010, I arrived at the site approximately 9:30A.M. and met two Stantec employees. They were Mark Densmore, Sr. Geologist, and Greg Michael, Sr. Engineer. They acted as the Northrop-Springfield facility representatives while I was on-site. However, they did not sign any of the inspection forms. Therefore, I emailed them to Mr. Saylor on 11/22/2010 for his signature. Mr. Saylor returned them on 11/23/2010 along with additional analytical information (see attachments 2 and 3). I also discussed my inspection findings with Mr. Saylor on the telephone at this time. Mr. Saylor requested that all EPA correspondence be sent to him at the above mailing address.

Facility Description

Northrop-Springfield is no longer operating. In approximately 2007, they sold what they could and demolished the building. Currently, Stantec is conducting on-site investigative and remediation activities. The investigative and remediation activities are being overseen by the Missouri Department of Natural Resources (MDNR), Division of Geology and Land Survey, Superfund Section. The MDNR contact is Evan Kifer located in Jefferson City, MO. Mr. Kifer stated that Northrop-Springfield is currently operating under a 1993 consent decree with MDNR that is in the process of being updated and expected to be finalized by December 2010. The contaminants are primarily tetrachloroethylene (TCE), 1,1,1-trichloroethane (TCA) and other "daughter" constituents. The areas of concern are shown on the layout included as attachment 4. Remediation activities currently include soil and groundwater treatment.

Soil remediation consists of Electrical Resistance Heating (ERH). A full-scale ERH system pilot was conducted on the New Acid Pit (NAP) area and was completed in approximately 2009. Based on the pilot results, an ERH system is currently being installed on the Original Acid Pit (OAP) Treatment Area (see attachment 3 for layout). The ERH system is expected to be operational by approximately January 2011 and the treatment is expected to take about six months. In general, the ERH system heats the soil to remove the contaminants. This generates steam and vapors which are captured. The steam is condensed and the water is discharged to an on-site wastewater treatment system (WWTS). The vapors from the high contaminated areas are treated in a catalytic oxidizer. The vapors from the low contaminated areas are treated in an activated carbon unit. The high and low contaminated areas are pre-determined based on previous analytical sampling results.

Until about June 2010, contaminated groundwater was being extracted and treated in the on-site WWTS. The WWTS consisted of pumping the groundwater into a surge tank, treating it in an air stripper, and discharging it to the city sewer under a pretreatment agreement with the city. Northrop-Springfield has about 14 groundwater recovery wells on-site. Since June 2010, Emulsified Vegetable Oil (EVO) is being used to treat the contaminated groundwater. This treatment process consists of injecting a vegetable oil/bacteria culture mix into the groundwater for degradation of contaminants.

The manifest for the last shipment of hazardous waste manifested off-site when Northrop-Springfield ceased operating in 2007 is included as attachment 5f. Since that time, the wastes generated on-site consisted of the following:

- **Spent Activated Carbon** was generated twice from the ERH pilot study. It was generated on 3/25/2009 and 9/29/2008. It was collected in containers and manifested off-site on 4/9/2009 and 12/10/2008, respectively. It was manifested as a F002/F003/F005 hazardous waste to Clean Harbors (see attachments 5d and 5e for manifests).

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  A signed LDR notice for the 7 tons of F002 soil cuttings manifested off-site on 9/29/2009 could not be located at the time of the inspection. Mr. Saylor stated that they maintain a copy of the manifests on-site and he also maintains an official file in Baltimore, MD. Mr. Saylor stated that he had a copy of the signed LDR notice that was sent with the manifest shipment. He emailed me the signed LDR notice on 11/19/2010 (see attachment 5a.i).

  At the time of the inspection, I observed two drums labeled as non-hazardous waste on-site. They were a drum of sediment from water that was removed from the non-hazardous A/B Lagoon area and a drum of Geoprobe soil cuttings from the non-hazardous sanitary lagoon. I asked for the analytical results relating to these two waste streams. The data could not be located at the time of the inspection. Mr. Saylor emailed me this data on 11/23/2010 verifying that these wastes were non-hazardous. The data is included as attachment 3, pages 5 through 10.

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OAP Treatment Area is capped by the ERH system. Therefore, any air stripper residue generated in the future will have to be handled differently.

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Re: credit leave/59 minute request

Jeffery Robichaud to: Gregory McCabe
Cc: Vonna Arnold

12/07/2010 11:14 AM

App
Jeffery Robichaud
Gregory McCabe

----- Original Message -----
From: Gregory McCabe
Sent: 12/07/2010 10:20 AM CST
To: Jeffery Robichaud
Cc: Vonna Arnold
Subject: credit leave/59 minute request

I need to leave around 2:15 today. I plan to use my '59 minutes' of 'other' leave, and the rest in credit leave.